# UTAH PARKING MODERNIZATION
# GUIDEBOOK

OCTOBER 2023

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# Introduction

**The Parking Modernization Guidebook has been developed by the Mountainland Association of Governments (MAG), Salt Lake County, the Utah Department of Transportation (UDOT), the Utah Transit Authority (UTA), and the Wasatch Front Regional Council (WFRC) to inform communities on WHY it is vital to take a fresh approach to parking to both better fit modern parking conditions and WHERE and HOW policy options and strategies can be implemented using case studies and examples from peer communities.**

This Guidebook is a step-by-step, simple toolbox that generates options based on unique contextual settings.

**With the rise in population, increasing vehicle ownership, and limited space available, traditional parking policies are outdated.** In response, many cities are embracing a change in parking policy, using innovative approaches and strategies to optimize space utilization, reduce traffic congestion, and enable use of transportation options.

This transformative change requires a complete assessment of conventional methods of parking regulation, design, and pricing, while leveraging technology and data-driven strategies for context-sensitive parking solutions. The timing is right to modernize the approach to parking now.

**As communities recover from the pandemic, it is crucial to assess the potential short-term and long-term effects on parking.** This guidebook contains research to help us understand the impact on parking of teleworking, transit, online shopping, delivery services, and vehicle ownership and use. In the wake of the pandemic, several changes and innovations have helped us understand how alternative parking approaches might work, such as the conversion of streets for outdoor dining or a public gathering space. While these initiatives have revitalized neighborhoods, they have also reduced the availability of on-street parking spaces. In these cases, communities have needed to reevaluate their approach to parking, placing renewed emphasis on curb access for various users. Consideration was given to accommodate curbside pickups, shared ride vehicles, bikes, scooters, and other micromobility options, instead of prioritizing on-street parking. The pandemic showed us these approaches can work.

The pandemic has also reshaped work dynamics, with many employees continuing to telework instead of commuting to the office five days a week. This shift presents an opportunity for cities to reassess their parking policies and regulations to align with sustainability goals, ensure access to a variety of transportation

choices, reduce congestion, and right-size parking based on community needs.

**This guidebook helps you better fit policy and strategy options to the unique characteristics of parking demands as they vary across your city.** The core concept is to have a parking approach that is not "one size misfits all" but is instead context-specific and demand-driven. Communities within Utah may have distinct needs and goals regarding parking management, considering factors such as their development intensity, transportation infrastructure, and future vision. It is crucial to acknowledge that each community in Utah may be at a different stage in

their parking management process, ranging from the metropolitan center of Salt Lake City to more rural areas with less urgency to update parking regulations. The purpose of this guidebook is to assist communities in reexamining their current parking regulations and policies. With an understanding of emerging mobility trends that impact parking, communities can optimize and right-size parking provisions while modernizing their approach according to their unique vision of the future. They adapt to the evolving urban landscape and create their vision for their neighborhoods, commercial areas, and city or town centers.

# Background

**For many decades, automobiles have played a significant role in shaping our communities. From roadways to parking spaces, our towns and cities have been designed and developed with automobiles as a central focus. Land and building costs have been dedicated to providing access and parking for vehicles, influencing the layout of our homes, workplaces, shopping centers, schools, and recreational areas.**

Parking regulations were initially introduced to prevent street parking from becoming overcrowded. Cities began implementing zoning ordinances that required new developments to provide a designated number of off-street parking spaces based on peak demand generated by specific land uses. However, these regulations did not consider the efficiency of parking in relation to the number of parked vehicles. The imposition of often-oversized minimum parking requirements through zoning codes has had a profound impact on the shape and function of our communities. These codes have led to new developments that often allocate significant portions of land for off-street parking.

An **oversupply of parking** for many land uses is particularly concerning in downtown areas or areas with mixed uses or higher density, such as areas near transit stations. Parking codes were originally fomulated around, and tend to be used, in contexts where walking and bicycling activity was low, or transit options were scarce. Requiring parking for every individual land use in close proximity does not adequately reflect how walkable, mixed-use, or higher intensity areas operate.

Some common issues with the traditional approach to parking include:

» **Concern for downtown/city character**, economic success, and diversity where parking may act as a barrier.

» **Little to no management and control** of existing parking assets, both public and private, creating an imbalance between supply and demand.

» Concern for **increasing costs** feasibility of new projects, due in part to the high cost of providing parking and its impact on affordability.

» Lingering **resistance to paying for parking**. However, this is giving way to paid parking in highly desirable areas.

» **Reliance on national standards** or standards from other communities that don't match the unique character, growth goals for the community.

Before we discuss why our parking approach needs to be modernized to better serve our communities now and, in the future, we should consider some of its benefits. Parking can benefit the community in these ways:

» **Convenience:** For those who commute by car, it may be convenient.

» **Accessibility:** A variety of people, especially those with mobility issues, will find a number of destinations to be more accessible.

» **Economic Impact:** Well-run and strategically placed facilities can boost local economies by drawing more customers to restaurants, shopping malls, and other establishments.

» **Support Transit Connections:** Parking close to transit stations and stops, particularly in suburban and rural areas where non-automobile infrastructure is underdeveloped, can help people access transit via a car.

» **Source of Revenue:** Parking can be a source of income for both public and private organizations when it is properly planned and managed.

## FACTS BY THE NUMBERS

**1/5TH** Of all land in city centers is dedicated to parking

**800 MILLION TO 2 BILLION** Total number of parking spaces in the USA

**3 TO 8** Spaces for every registered vehicle in the USA

**5%** Of all urban land in the USA is covered in surface parking lots

# Why? Case for Modernization of Parking Approach in Utah

## New Parking Dynamics in Utah

**Commuting, shopping patterns, and personal transportation habits are changing in Utah. In addition, communities are establishing walkable city and town centers that have different parking needs.**

The following is a summary of factors driving an historic shift in parking needs in Utah:

» **Telework and e-Commerce:** Commercial areas with office and retail uses are reduced experiencing parking demand. Office buildings are seeing a reduction in people working in offices and parking serving these office buildings is now underutilized. With changing shopping habits and people shifting to online shopping and deliveries, shopping centers are experiencing decreased customer traffic thus reducing parking needs.

» **Increasing Costs:** Cost of building new development has increased significantly, due in part to the high cost of providing parking and its impact on housing affordability.

## EXCESSING SUPPLY

A survey of 200 multi-family properties in **King County, Washington** revealed that multifamily parking capacity exceeded utilization by an average of:

**0.4 SPACES PER HOUSING UNIT** — a **40% OVERSUPPLY.**

» **Increased focus on City and Town Centers:** Many cities are focusing on promoting centers: compact, walkable, and mixed-use development, as included in the Wasatch Choice Vision. This shift towards centers calls for a more efficient and flexible approach to parking.

» **Changing Mobility Patterns:** The emergence of transportation options such as ridesharing, bike-sharing, and micromobility services, especially in more urban areas, has reduced the demand for private vehicle ownership and the need for extensive parking infrastructure.

» **Environmental Concerns:** The excessive provision of parking contributes to increased vehicle miles traveled, traffic congestion, and greenhouse gas emissions. Some cities are now prioritizing sustainability and aiming to reduce car dependency by encouraging active transportation, public transit, and carpooling.

» **Technological Advancements:** Smart parking technologies, including real-time parking availability information, digital payment systems, and intelligent parking management systems, are providing cities with innovative tools to optimize parking utilization and reduce the need for excessive parking spaces.

For the past many decades, parking regulations and policies have been "reactive" to changes in the community where parking codes change only after a problem has been identified. As time has passed, it has become apparent that this reactive approach and adherence to minimum parking requirements has had unintended consequences. Cities everywhere, including Utah, are recognizing the need to take a fresh look at parking requirements based on recent data as well as consideration of new approaches to parking management.

# Downtown Ogden

Ogden's downtown is vibrant, with a mix of residential uses, retail, hotels, government and private offices, and land slated for future development. Downtown has access to a variety of multimodal options, including commuter rail, bus, bike, scooter, and pedestrian sidewalks.

## Key findings

» **Overall parking occupancy in the Downtown is underutilized, with an overall parking occupancy of 51 percent.** This indicates that the parking system needs some balancing, but also that the system can absorb new development.

» **Parking management strategies can be implemented** to encourage users to park in the public off-street garage and/or on adjacent blocks that have lower occupancies.



Ogden – Occupancy by Type and Time of Day
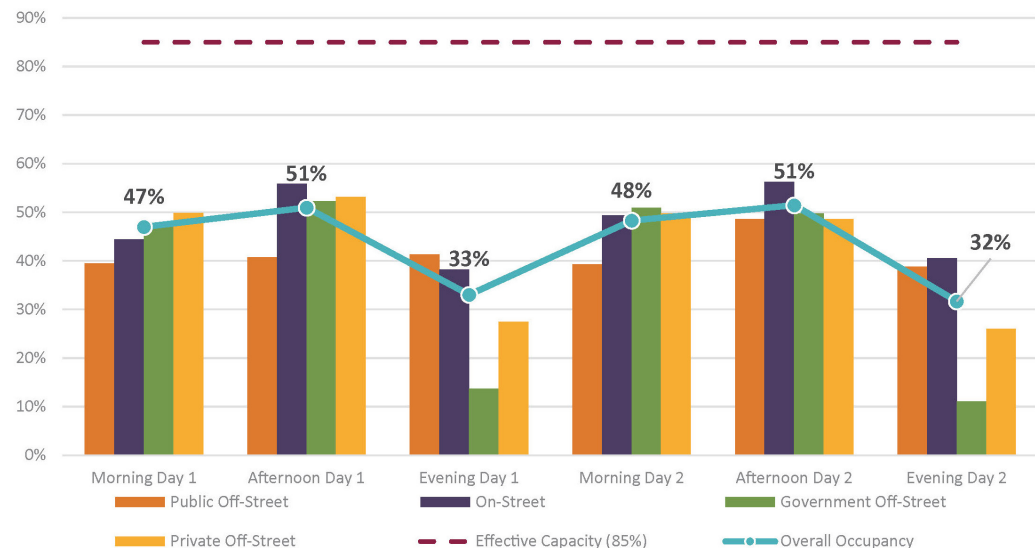
# South Salt Lake

South Salt Lake has been going through an exciting redevelopment phase in their downtown area. Many existing warehouse-type land uses are being redeveloped. There are also numerous TRAX light rail stations, S-Line streetcar stations, and high frequency bus service that provide transit 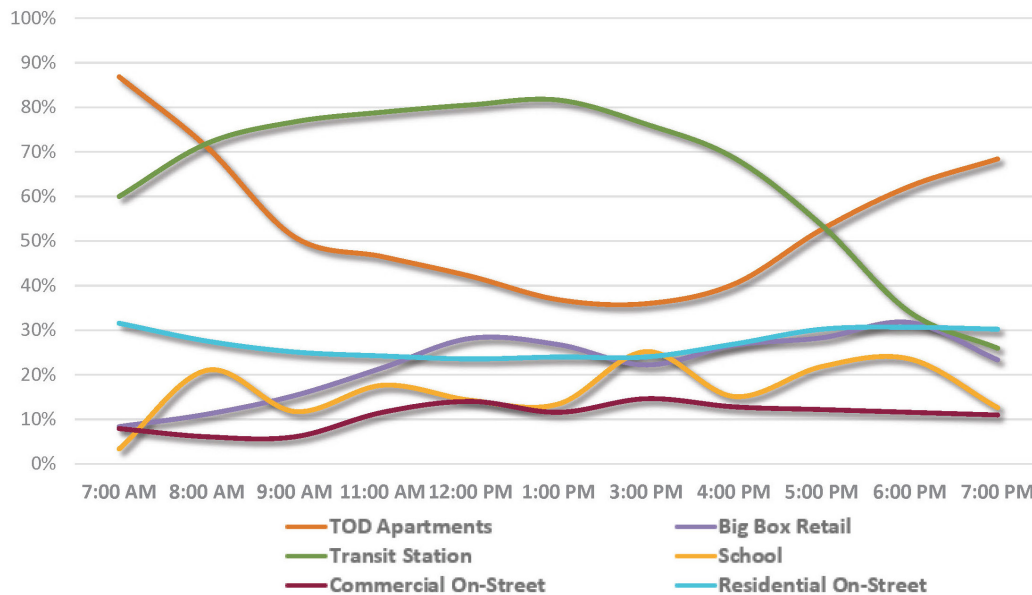connections throughout the City and to surrounding communities. Transit-Oriented-Development-style housing has been popular due to the abundance of frequent, high-quality transit. In the South Salt Lake Parking Study, parking requirements for housing and retail in the downtown area were compared to observed parking demands. The comparison was made to see if the parking requirements should be changed to reflect modern transportation trends.

## 🔑 Key findings

» **Parking occupancy is generally low** for all land uses observed, especially retail land uses, where only 30 percent of parking was used at peak hour.

» While residential requirements were considered appropriate, the recommendation was to **reduce parking requirements for retail by 50 to 60 percent**.

### South Salt Lake – Weekday Parking Occupancy by Land Use Typology



Legend:
- TOD Apartments
- Transit Station
- Commercial On-Street
- Big Box Retail
- School
- Residential On-Street

# SHOULD I UPDATE MY PARKING CODE?

To answer the question "should I update my parking approach?", it is important answer the following questions about parking:

1. Do you know what data informed your parking codes?
2. How old is the data that informed your parking codes?
3. Do you treat all community contexts the same in your parking regulations? For example, does a retail store have the same parking requirements near a transit station as elsewhere?
4. What are some of the direct and indirect costs of parking in your community?
5. Do your current parking codes and policies broaden outcomes you value such as affordability and walkability?
6. Are current parking requirements sensitive to context and community goals?

## What are the direct and indirect costs of parking to communities?

To broadly assess the influence and impacts of parking policies and code requirements on communities, it is critical to consider the various costs associated with parking. Research has identified the following costs as significant factors:

» **Direct and Opportunity Costs of Land Area Dedicated to Parking:** One of the primary costs of parking is the allocation of valuable land space. Land that is dedicated to parking, whether on-street or off-street, represents an opportunity cost as it could have been utilized for other purposes such as housing, green spaces, or commercial development. This directly affects urban density, land availability, and the overall aesthetics and functionality of the community.

» **Construction, Operations, and Maintenance Costs:** Building and maintaining parking infrastructure incur substantial expenses. Construction costs include the materials, labor, and design necessary for parking facilities. Operational costs encompass expenses related to staffing, security, lighting, signage, and technology. Maintenance costs involve routine upkeep, repairs, resurfacing, and the replacement of parking facilities or equipment. These expenses can place a financial burden on cities, businesses, and developers.

» **Environmental and Indirect Costs: Parking has significant environmental implications:** The construction and maintenance of parking facilities require materials, energy, and water resources, contributing to air polluntant and carbon emissions and environmental degradation. These indirect costs impact public health, sustainability, and the overall livability of communities.

» **Negative Trade-Offs with Other Travel Modes:** Excessive parking increases walking and bicycling distances and can reduce the walkability of an area. Excessive parking also reduces the total amount of homes and jobs in an area which can significantly reduce use of public transportation. With less walking, bicycling, and transit use, and longer driving distances, traffic and air pollution increases.

Understanding and quantifying these costs is important. By considering the direct and opportunity costs of land, construction and operational expenses, and the environmental

and indirect impacts, communities can make informed decisions and implement parking strategies that align with their long-term goals.

A modernized approach to parking aims to optimize parking supply and efficiency by employing innovative policies such as demand-based pricing, shared parking, and parking maximums. These strategies promote multimodal mobility by encouraging the use of public transit, walking, cycling, and shared transportation options.

# Are current parking requirements sensitive to context and community goals?

Current parking requirements in many cities may lack the flexibility to be context-sensitive and aligned with community goals.

## Key Considerations

» **Factors Influencing Parking Demand:** Parking demand is influenced by various factors, including development scale, diversity or mix of land uses, density, design characteristics, demographics, accessibility to destinations, and proximity to transit. However, minimum parking requirements often fail to account for these context-specific factors, resulting in either insufficient or excessive parking provisions.

» **Impact on Affordable Housing:** Excessive parking requirements can have a significant impact on the cost of building affordable housing. Mandating a high number of parking spaces increases construction costs, limits housing affordability, and may hinder the development of compact, walkable communities. Context-sensitive

parking policies can help strike a balance between parking supply and affordability, considering the unique needs and goals of each community.

» **Adopting Context-Sensitive Approaches:** To avoid oversupply of parking and promote efficient land use, public agencies should consider adopting context-sensitive parking requirements and policies. This involves assessing the specific characteristics and demands of each location and tailoring parking regulations accordingly. Implementing parking management strategies, such as shared parking, demand-based pricing, and promoting transportation choices, can further optimize parking utilization and support community goals.

» **Optimization of Public and Private Parking:** Emphasizing optimization of both public and private parking resources is crucial. Public agencies should collaborate with developers, property owners, and stakeholders to identify the most effective parking solutions for a given context. This may include exploring

shared parking agreements, supporting shared mobility options, and encouraging active transportation to reduce parking demand and maximize the use of existing parking facilities.

**In summary, current parking requirements may not always be sensitive to the unique context and community goals. By adopting context-sensitive parking policies, considering factors influencing parking demand, and embracing parking management strategies, communities can optimize parking utilization, support affordability, and create more sustainable, livable environments.**

# Economic Impact of Parking

To understand the land and economic costs of providing parking, a high-level review was conducted of land-uses, fiscal impacts, and economic data for a selection of case study areas. A pro-forma analysis was compiled for housing, retail, and office projects to conceptualize and highlight the capital and ongoing cost of providing parking.

Impacts of large quantities of surface parking were analyzed at four different sites: two in the WFRC Region and two in the MAG Region. Two additional sites outside the Wasatch Front serve as comparison to the area. These areas include Belmar in Lakewood, Colorado and Orenco Station in Hillsboro, Oregon.

The land adjacent to the **Farmington FrontRunner Station** includes the Station Park Mall and surrounding businesses. These areas include big box stores as well as the University of Utah Farmington Health Center and a grocery store. The site dedicates a full 52 acres of space

to parking, approximately 48 percent of the total site area. While there is a park and ride adjacent to the FrontRunner, the station's position between the sea of parking lots and I-15 makes it largely inaccessible to pedestrians and bicyclists.

**Central Pointe in South Salt Lake** does not have an existing station area plan, but the City has taken steps to enable transit-oriented development. Central Pointe is zoned for mixed-use development, planned for moderate-income housing, and adopted some TOD-supportive parking requirements. However, there is room for improvement in the City's plan for density and its use of tax increment financing   districts. Tax Increment Financing (TIF) is a revenue tool that uses taxes on future gains in real estate values to pay for new infrastructure improvements.

The **Thanksgiving Point area** is adjacent to the Lehi FrontRunner Station. The area is mainly an office park along with hospitality and some small retail space. The area is home to the Utah

Valley University Thanksgiving Point Campus as well as multiple large hotels. There are also financial services providers and tech businesses. Seventy-two acres of land at Thanksgiving Point is dedicated to parking - 49 percent of the site's total land area. While transit-oriented housing development in this area will increase the housing supply and improve transit access, the rest of the site remains heavily parked. The large amount of surface parking at Thanksgiving Point decreases walkability.

The **Provo Towne Center study area** consists of a mall surrounded by parking next to another large shopping center. The Provo Towne Center Mall has large, anchor department stores and a Cinemark movie theater. South of the mall there is a Home Depot. The East Bay Shopping Center east of the Town Centre Mall includes many big-box stores, as well as the Provo Post Office. Nearly 85 acres of the site is dedicated solely to parking - 57 percent of the total site area. While the site is not directly transit-adjacent, there is

## DID YOU KNOW?

Within the Wasatch Front Region:

» **Retail** uses are generally required to provide **6.5 SPACES** per 1,000 square feet of rentable building area (RBA).

» **Office and specialty** use have more than **3.0 SPACES** per 1,000 square feet of RBA.

» Even **within a half mile of a light-rail, multi-family housing** has nearly **ONE SPACE PER UNIT.**

a FrontRunner station less than a mile north of the Towne Center Mall. UVX directly serves the Towne Center via a station along Towne Center Boulevard. In summary, approximately 50 percent of the total site area is dedicated to surface parking.

Provo Town Center and Lehi could both transform heavily parked former commercial spaces into thriving mixed-use communities. Lakewood, Colorado provides an example for these communities to follow with the **redevelopment of the Villa Italia regional mall into what is now Belmar.** Villa Italia was a 104-acre site with 1.2 million square feet of commercial space built in 1966.

The vast parking lots that had surrounded the Villa Italia shopping center were converted into mixed-use buildings with retail, housing, office, health care, and hospitality. The redevelopment was a public-private partnership between the City of Lakewood and a developer. As a result of the redevelopment, the value of the site increased from $120 million to $1.02 billion. While it is still a shopping district, it is significantly more walkable and offers spaces for public gatherings. The site still includes a significant parking element, with 2,500 surface and 2,500 structured spaces, but the parking ratio is significantly lower than it had been previously.

Five thousand spaces serve 1,048 residential units and nearly 1.5 million square feet of retail, office, health care, and hospitality. This is nearly the same square footage as the building footprints at Provo Towne Center, where there are an estimated 10,572 parking spaces.

A similar example can also be found in Hillsboro, Oregon's **Orenco Station** development, which was first planned in 1990s and completed in 2016. The Portland Metro Area 2040 Plan designated the site as a "town center" and mandated mixed-use development after it was originally zoned for industrial use and subdivision housing. Housing at Orenco Station includes detached single family, attached single family, condos, and apartments on 171 acres of land. While Orenco Station does have surface, street, and underground parking, parking is shared between commuters, visitors, and residents to reduce the total number of spaces and maintain walkability throughout the site. In the transit-oriented portion of the site, there are 2,979 parking spaces serving 56,730 square feet of commercial space and 1,944 housing units. Initial development at Orenco Station consisted

| Wasatch Front Region site | Central Pointe TRAX Station Area | Farmington Station Area, Farmington | Lehi – Thanksgiving Point | Provo Town Center |
|---|---|---|---|---|
| Total Area | 103.3 Acres | 107.7 Acres | 146.9 acres | 150.2 acres |
| High-Quality Transit | Yes, TRAX station | Yes, FrontRunner Station | Yes, FrontRunner Station | No, 0.7 miles from FrontRunner Station |
| Building Footprint | 28.9 acres (28%) | 22.5 acres (43%) | 13.4 acres (9%) | 33.4 acres (39%) |
| Curbs, Sidewalks, plaza space, natural areas, etc. | 11.8 acres (11%) | 22.7 acres (21%) | 33.7 acres (23%) | 10.8 acres (7%) |
| Roadway | 12.8 acres (12%) | 6.8 acres (13%) | 21.1 acres (14%) | 16.8 acres (20%) |
| Development Site | - | 3.5 acres (7%) | 6.3 acres (4%) | 4.3 acres (5%) |
| Parking | 49.8 acres (6,202 spaces) **48%** | 52.1 acres (6,490 spaces) **48%** | 72.3 acres (8,996 spaces) **49%** | 84.9 acres (10,572 spaces) **57%** |

VILLA ITALIA PRIOR TO REDEVELOPMENT



BELMAR AFTER REDEVELOPMENT

of single-family homes and two- to three-story garden apartments. But during the later phases, developers became more ambitious, constructing slightly taller mixed-use buildings, culminating with the development of the Platform District beginning in 2012. The Platform District is located directly adjacent to the MAX station, offering a mix of housing, retail, and amenities for residents and visitors alike. The Platform District utilizes a shared parking model between buildings to reduce parking overall across the site. By using a shared-parking strategy, the Platform District serves residents and visitors without an overabundance of parking.

| Land use | Villa Italia | Belmar |
|---|---|---|
| Retail | 1,200,000 | 726,000 |
| Residential | 0 | 1,659,619 |
| Office | 0 | 468,826 |
| Health Care | 0 | 44,016 |
| Hospitality | 0 | 235,122 |
| Total | 1,200,000 | 3,133,583 |
| Value per sq. ft. | $100 | $325 |
| Total Value | $120,000,000 | $1,018,414,475 |

# Financial Analysis

High parking requirements can hinder the development of projects and affect the size and value of those that are built. Feasibility of a development depends on factors such as land costs, rent prices, regulatory requirements, construction costs, and parking requirements.

Parking requirements can affect feasibility by influencing land utilization and construction costs. Surface parking, although inexpensive to build, occupies a substantial amount of land, limiting the potential development on-site. This becomes more challenging in areas with low height restrictions and floor area ratios (FAR). If horizontal development is not feasible due to space constraints, vertical construction becomes necessary. Consequently, the interplay between height limits and parking requirements greatly impacts the feasibility of a project.

Total project costs are typically categorized into three main categories: land costs, hard costs, and soft costs. Hard costs encompass expenses related to materials and construction, including site work, foundations, shell and core construction, tenant improvements, and the construction of on-site parking. On the other hand, soft costs refer to non-construction expenses such as design, engineering, fees and permits, legal services, marketing, and other associated costs. In the given context, the financial analysis assumes that the soft costs specifically associated with parking amount to 30 percent of the hard costs.

## Office Parking

The COVID-19 pandemic led to a substantial increase in telecommuting, raising questions about the future of office space. This shift in work dynamics provides an opportunity to reconsider the amount of parking required in new office construction projects. With more employees working remotely either full-time or part-time, the demand for office parking may decrease. Evaluating and adjusting parking requirements based on the changing needs and behaviors of workers can lead to more efficient and sustainable use of space in new office developments. This may involve reducing parking ratios or exploring alternative transportation options to accommodate the evolving work landscape. By reducing the surface parking on site, developers can build more office space on a lot of the same size, increasing the taxable value of the property. In addition, developers may be willing to provide public amenity space if less land is dedicated to vehicle storage.

## Retail Parking

Parking ratios for retail establishments often differ based on the specific use. In a mixed-use zone, for instance, a café could be required to provide three parking spaces per 1,000 square feet of commercial space. Comparatively, restaurants have a higher requirement of ten spaces per 1,000 square feet, while medical facilities are required to provide five spaces per 1,000 square feet.

Retail establishments typically occupy a single-story building and usually do not have structured parking, unless it is shared with another use, such as in a mixed-use podium building. This implies that surface parking is often utilized to fulfill the parking requirements for retail businesses.

## Residential Parking

A parking requirement of two spaces per unit would occupy more than 40 percent of the land on a one-acre site. This leaves limited space for the construction of 25 units, considering setbacks and any applicable FARs and height restrictions. Meeting these requirements may prove challenging or even infeasible.
However, if the parking ratio is reduced to one space per every two units (0.5:1), only 10 percent of the site would be occupied by parking. This would free up a significant amount of space for the construction of apartments, as well as the inclusion of site amenities such as landscaping, open spaces, and community gathering areas. Moreover, it would allow for housing to be built closer to employment and commercial areas, enhancing proximity and accessibility.

## Surface Parking Space Lot Coverage Impacts for One-Acre Garden-Style Housing Project

**Y-axis (left):** Square Feet of Surface Parking Lot Area — 2,000 to 18,000
**Y-axis (right):** 0.0% to 45.0%
**X-axis:** Parking Spaces per Multifamily Unit — 2, 1, 0.5, 0.25, 0

Legend: ▬ Parking Area  ▬ Percent Lot Coverage

# Findings of the Economic Impact Analysis

The economic impacts of parking are significant and affect various aspects of development and community planning.

## 🔑 Key findings

» **Feasibility of Developments:** Parking requirements directly impact the feasibility of housing, office, and retail developments. High parking minimums can increase construction costs and limit the potential for economically viable projects, especially in dense urban areas. This can hinder the development of compact, walkable communities that align with regional goals.

» **Impacts on Area Attractiveness and Environment:** Large surface parking lots detract from the attractiveness and walkability of an area. They can create heat island effects, contribute to stormwater runoff issues, and undermine efforts to maintain a sustainable environment and preserve natural resources. Emphasizing alternatives to surface parking supports the creation of more sustainable and environmentally friendly communities

» **Affordability and Rent Impact:** The cost of providing structured parking, such as in multifamily developments, can lead to higher rents for tenants, even for those without
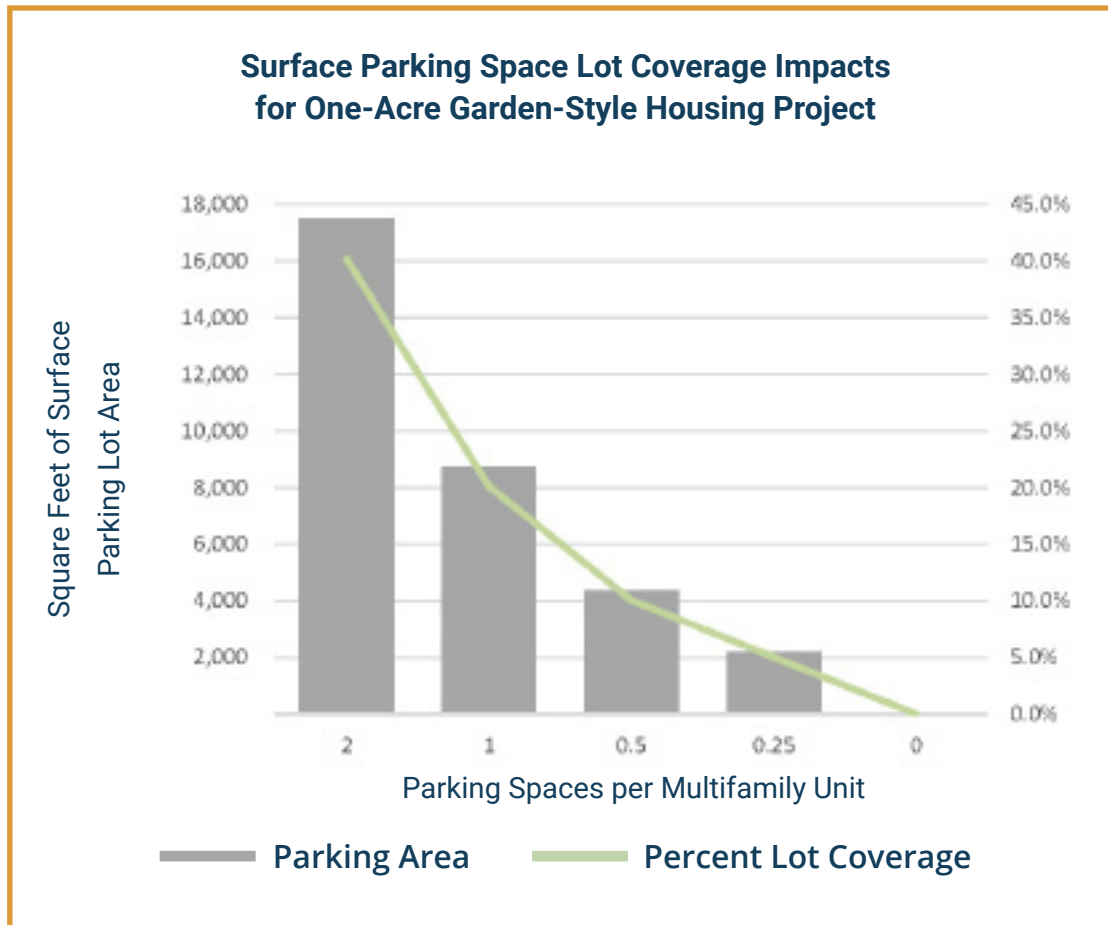
cars. The financial burden of meeting parking requirements is distributed across all tenants, regardless of their actual parking needs. This can impact housing affordability and limit options for cost-effective development.

» **Surface Parking and Development Potential:** While less expensive than structured parking, surface parking reduces the usable footprint and FAR available for development. This can limit the feasibility of projects and impact future property tax revenues. Exploring alternatives to surface parking and utilizing land more efficiently can enhance development potential and revenue generation.

» **Shifting Parking Demand:** The increase in hybrid and remote work arrangements reduces the demand for on-site, off-street parking at office buildings and office parks. This creates opportunities to repurpose underutilized parking lots for housing or mixed-use projects, maximizing land use efficiency and responding to evolving market needs.

To address these economic impacts, cities should consider reducing parking minimums and provide flexibility in meeting requirements through shared parking. Additionally, considering on-street parking spaces toward meeting parking requirements, particularly for developments that contribute to road improvements, can optimize parking resources and support efficient land use.

**In summary,** the economic impacts of parking encompass feasibility challenges, impacts on area attractiveness and the environment, affordability concerns, and opportunities for adaptive reuse. By reevaluating parking requirements, embracing shared parking, and promoting alternative transportation options, communities can foster economically viable, sustainable, and inclusive development that aligns with regional goals.

# CASE STUDIES

Many cities and municipalities around the country have embarked on the process of modernizing and improving their parking policies. Several case studies were conducted to analyze innovative approaches to parking policy changes and management strategies, focusing on maximizing land utilization, reducing reliance on personal vehicles, and promoting sustainable transportation alternatives. By studying these real-world examples, we can gain valuable insights into the successful implementation of parking policy reforms and strategies that align with the changing needs and demands of modern urban environments. A comprehensive analysis is presented in the appendices.

# CASE STUDY

## Orenco Station Transit-Oriented Development Hillsboro, OR



**Orenco Station is a development in suburban Hillsboro, Oregon with 110 acres of mixed-use development on approximately 135 acres of land. Orenco Station was first planned in the 1990s and completed in 2016.**

Orenco Station development is located adjacent to a MAX station at NW 231st Avenue and offers a wide variety of housing types as well as retail, office, and hospitality. As mentioned earlier, housing at Orenco Station includes detached single-family, attached single-family, condos, and apartments on 171 acres of land. While Orenco Station does have surface, street, and underground parking, parking is shared between commuters, visitors, and residents to reduce the total number of spaces and maintain walkability throughout the site. In the transit-oriented portion of the site, there are 2,979 parking spaces serving 56,730 square feet of commercial space and 1,944 housing units. The Platform District at Orenco Station utilizes a shared parking model between buildings to reduce parking overall across the site. While parking demand is highest at night for the east and central buildings, it peaks during the day for the west buildings. By treating these spaces as part of a shared pool rather than use- or building-specific, the Platform District serves residents and visitors without an overabundance of parking.

*After World War II, [the town's] light rail line was ripped out, replaced with government-subsidized roads and freeways. Walkable streets were replaced with spaghetti cul-de-sac neighborhoods and arterials, and mixed-use neighborhoods were replaced with single-use strip malls and office parks. Everything was accessible almost exclusively by car.*

- Michael Mehaffy
Project Manager for Orenco Station

# CASE STUDY

## New Approach

» **The focus on strong pedestrian connectivity is paramount in these developments.** Orenco Station, for example, is recognized by the Urban Land Institute (ULI) as both a transit-oriented and pedestrian-oriented development. This emphasizes the importance of creating an environment that encourages walking and reduces reliance on private vehicles.

» **A significant aspect of the zoning approach is the flexibility in parking usage.** Residential and commercial parking spaces can be utilized by different users at different times, optimizing their utilization throughout the day. Additionally, the zoning provisions allow for shared parking arrangements between Transit-Oriented Development (TOD) and transit park-and-ride users, maximizing the efficiency of parking resources.

» **In the Town Center area, buildings are required to be situated along the streets, enhancing pedestrian and cyclist accessibility.** Furthermore, the zoning regulations promote mixed-use developments, with some cases even mandating their incorporation. This approach ensures a diverse and vibrant mix of land uses, fostering a sense of vitality and activity within the community.

» **As part of its commitment to fostering new residential developments along transit lines, Portland's Metro regional government has facilitated new zoning ordinances that support innovative design and land use practices.** These ordinances have allowed for the creation of "skinny" streets, close maximum street setbacks, side-yard easements, accessory dwellings, live/work homes, and alley-loaded garages

## Lessons Learned

» Pedestrian and transit access, shared retail and park-and-ride parking, and shared or unbundled residential parking likely contributed to **lower parking demand.**

» Orenco Station's residential parking demand was much lower than the Institute of Transportation Engineers (ITE) Parking Generation Manual standards. ITE advised 1.2 parking spaces per residential unit. The property provides 1.08 parking slots per unit to decrease parking demand. A 2018 analysis found that the TOD's **peak residential parking occupancy was 0.63 parking stalls per unit, less than 60 percent of its supply, showing that parking was still oversupplied.**

» **Public parking at Orenco Station was higher than residential parking.** A study by Ewing et al. indicated that public parking occupancy rates remained high overnight, suggesting that some people were parking in public spaces to avoid monthly parking fees. Oversupply of TOD parking may encourage nighttime public parking to avoid fees. However, the tendency of people using public parking to avoid paying for residential parking permits emphasizes the benefits of sharing parking.

» **Urban Land Institute (ULI) determined that higher densities and mixed housing types were economically viable** in Orenco Station's former suburban region, in addition to reduced parking demand.

## Fruitvale Village Transit Oriented Development Oakland, CA



**Fruitvale, once considered Oakland's second downtown, experienced a decline in the post-World War II era. As factories shuttered, the area began to deteriorate, causing concerns among both residents and visitors regarding safety and overall livability.** In preparation for the completion of the Fruitvale Bay Area Rapid Transit (BART) station in 1972, buildings and homes were demolished to make way for the elevated train system.

The BART station quickly gained popularity among commuters, primarily due to the provision of free parking. To accommodate the demand for parking, extensive changes were made to the street grid, leading to the creation of large surface parking areas for commuters.

While the availability of free parking at the Fruitvale BART station initially appealed to commuters, the focus on accommodating cars through extensive surface parking had unintended consequences for the neighborhood. The reconfiguration of the street grid and the creation of expansive parking areas disrupted the urban fabric and detracted from the area's vibrancy and pedestrian-friendly environment.

Since then, Fruitvale has been revitalized by encouraging transit-oriented development, walkability, and alternative transportation. Enhancing pedestrian infrastructure, supporting local businesses, and encouraging a mix of land uses can make a neighborhood more vibrant and livable. The experience of Fruitvale serves as a valuable lesson in the consequences of prioritizing car-centric development and the importance of considering the broader impacts of parking policies and transportation infrastructure on the vitality and character of urban areas.

# CASE STUDY

## New Approach

» **BART proposed a stand-alone parking garage in the 1990s to increase station ridership, but it was rejected.** The Unity Council, a local nonprofit community development corporation held community meetings to develop a revitalization strategy. Two four-acre mixed-use buildings with affordable housing, social services, and retail were built over the next decade. Fruitvale Village was built as a mixed-income, socially equitable, transit-oriented development.

» **Phase 1 included 47 residential units (ten low-income), 40,000 square feet of retail, and 114,509 square feet of office space.** Community social services including a child development center, library, and health clinic were also added. The development has surface and structured parking and a 200-bike bike garage.

» **All land uses can share parking.** From 10 AM to 3 PM, Fruitvale charges $3.00 per day for residential parking, which is shared with commercial and park-and-ride parking. Fruitvale has a hybrid parking policy, where the first space/permit comes with the apartment and a second space (if renters want one) costs them $90 per month.

## Lessons Learned

» **Low-income residents were not displaced.** They stayed in central city neighborhoods, and car energy consumption and emissions decreased.

» **In 2010, Fruitvale Village was approved to begin phase two of development.** Previously a 547-space surface parking lot, the 3.4-acre site to the south was approved to include a mix of 275 multi-family affordable and market-rate residential units with only 277 total parking spaces. Being close to BART and bus transit improves destination accessibility via transit while reducing reliance on personal vehicle use. A case study conducted by Ewing et al. found that automobile trips accounted for only 23% of the total trips going in/out of Fruitvale Village.

» **Due to shared parking, Fruitvale Village had a relatively high parking occupancy rate compared to similar TODs studied.** The parking lot was "right sized" because peak parking demand was 84 percent of supply but only 19 percent of ITE Parking Generation rate guidelines (Ewing, 2016).

# CASE STUDY

## City of Buffalo, New York



*The case study of Buffalo serves as an example of how reevaluating and adjusting minimum parking requirements can lead to improved urban design, economic vitality, and a more sustainable and inclusive city for residents and visitors alike. Based on our research, it is estimated that by 2021, the new parking reforms had resulted in creation of more than 1,000 new homes and many transit-accessible businesses and restaurants which would have not be feasible under the prior parking requirements because of the prohibitive high cost of parking.*

**In Buffalo, there has been a significant shift in the citywide minimum parking requirements (MPRs) as part of efforts to address the negative consequences associated with these regulations.** MPRs were initially introduced in the mid-20th century to mitigate parking spillover and high demand for on-street parking resulting from the increasing prevalence of automobiles as the primary mode of transportation. However, research has revealed that MPRs have inadvertently led to the proliferation of massive surface parking lots, undervalued car storage, limited opportunities for shared parking, and a diminished focus on transit and active modes of travel within urban areas. These requirements have had adverse effects on accessibility, sustainability, and economic factors such as higher rents and prices.

Recognizing these drawbacks, Buffalo has undertaken a comprehensive examination of its parking policies and has implemented changes to reduce the minimum parking requirements. This market-driven approach aims to align parking provisions with actual demand, promoting more efficient use of urban space and encouraging alternative transportation modes. By reducing the emphasis on off-street parking requirements, Buffalo is working to create a more accessible and sustainable urban environment. This shift fosters the development of vibrant and walkable neighborhoods that prioritize transit options and active modes of travel. Additionally, by reducing the economic disadvantages associated with high MPRs, the city aims to enhance affordability and promote equitable access to housing and services.

# CASE STUDY

## New Approach

The City of Buffalo eliminated off-street MPRs in April 2017 by enacting a form-based zoning code that promotes walkability and mixed-use developments. It became the first city of its size in the nation to do away with mandatory minimum parking. The new zoning code prioritizes walkability and mixed-use developments, encouraging the provision of off-street parking based on the specific needs and context of each project.

The city adopted supplementary policies to shift the emphasis from automobiles to other modes, such as:

» **Bicycle parking minimums** at multi-family residential units. Increased building heights, increased density, and parking in the rear of the building in TOD districts.

» **Transportation demand management strategies** required as part of major site permitting to reduce single-occupancy vehicle (SOV) mode share.

» **Developers could provide more or less parking** compared to the modal objective of a development project. However, if parking exceeds ten percent, it requires a written justification.

## Lessons Learned

The City of Buffalo let the market determine the availability of parking by removing MPRs. Initial concerns were raised if this parking strategy would deter real estate investments. The following are some conclusions from a review of actions that followed the repeal of MPRs:

» **Each land use experienced a different impact from the removal of MPRs.** In contrast to single-use residential, commercial, and civic projects, developers of mixed-use projects took advantage of the situation and built less parking than was required by the prior parking regulations.

» **Based on market forces, parking was still suggested** or provided as part of new developments.

» The overall number of parking spaces required by all new developments approved after the repeal of MPRs was achieved by a significant margin. According to the research, **there were 21 percent fewer spaces constructed in the first two years following the reforms.**

» **The policy package**, which included removing MPRs, bicycle parking requirements, and TDM requirements, **"nudged" developers to carefully consider the amount of parking supply.**

» **Eliminating parking minimums can encourage developments to right-size parking supply** based on market forces rather than parking requirements that may not match actual parking demand or context.

» Some new constructions **shared excess parking** rather than adding new spaces.

» The City Council can still decide to require parking through a **review process for projects larger than 5,000 square feet.**

## City of Seattle, WA



*Seattle's ST1, ST2 , and ST3 funding packages funded 116 miles of light rail and 64 miles of bus rapid transit. Mode Seattle, a $930 million multimodal transportation project involving seven RapidRide lines and upgrades to bus service, also passed.*

**The City of Seattle overhauled its parking requirements in April 2018.** The Seattle Department of Construction and Inspection reforms allowed building owners to make parking facilities with excess capacity available for public use to increase neighborhood parking availability and reduce parking costs.

In 2012, the city changed its minimum parking requirements to incentivize housing.

» Seattle **removed minimum parking requirements** in high-density urban centers,

» **Eliminated parking requirements** for residential and non-residential uses in medium-density neighborhoods located within one-quarter of a mile of a public transit stop with 15-minute headway,

» and **Reduced minimum parking requirements by 50 percent** on major transit corridors.

Seattle has a progressive parking code to reduce parking, especially in transit-rich areas. To encourage housing, the city lowered parking requirements in 2012. Seattle eliminated minimum parking requirements in high-density urban centers, residential and non-residential uses in medium-density neighborhoods within one-quarter of a mile of a public transit stop with 15-minute headway, and 50 percent on major transit corridors. However, Seattle continued to see a vast majority of housing units (87 percent) in urban centers and urban villages where parking is provided. A comprehensive survey of hundreds of residential buildings in King County (including 95 buildings in Seattle) revealed that 35 percent of residential parking garage spaces were not utilized.

# CASE STUDY

## New Approach

The reforms to the parking regulations were aimed at providing more flexibility for use of parking and reducing the cost of excessive parking requirements for residential and mixed-use projects in urban areas. Provided below is a summary of the reforms:

» **Flexible-Use Parking:** This is a new category added to the land-use code. This type of parking would allow extensive use of new and existing parking facilities. There would be extra parking spaces not already dedicated for a specific use and can be offered to nearby properties, residents, and car sharing companies to lease.

» **Refining Parking Requirements:** Parking requirements for specific uses were refined based on various factors. For example, for low-income housing, parking was reduced to 0.2 spaces per unit compared to a current standard for housing for households at or below 60 percent of area median income ranging between 0.33 space and 1.0 space per unit. For households at or below 80 percent of the area median income, the range is 0.167 – 0.33 spaces per unit. Some other changes

include removing exceptions in Downtown zones to provide more parking than maximum limits, exempting public uses and institutions within a frequent transit service area from parking requirements, and allowing parking reductions to the minimum necessary to support a proposed activity (except for Downtown Zones) if adequate technical evidence is furnished.

» **Bicycle Parking:** This involved increased bicycle parking requirements related to specific uses. Also, the reforms include performance standards for better deployment of bicycle parking, such as secured facilities, long-term/short-term parking, lighting, access, signage, weather protection, etc.

» **Frequent Transit Service Measurement:** Parking requirements for residential and non-residential uses can be waived or reduced if these uses are located within 1/4-mile distance from frequent transit service. The city saw several projects being challenged based on measuring frequent transit service. The reform to resolve this issue by revising the definition of "frequent transit service" and adding a new term, "transit service headway."

» **Other changes include** State Environmental Policy Act (SEPA) policy updates, mobility mitigations including subsidies for participation in car sharing, bike sharing, etc., reforming parking spillover mitigations, incentivizing car sharing unbundling parking requirements for residential multi-family development with ten or more dwelling units, and accessory parking distance increased from 800 feet to 1,320 feet.

## Lessons Learned

» In dense urban cores, 2012 parking reforms reduced new building parking supply. These reforms eliminated off-street parking requirements in many areas, allowing developers to provide fewer parking spaces. Most buildings in these areas had less than one parking space per unit, with developers closely following the minimum requirements.

# CASE STUDY

» Minimum parking requirements no longer restricted developers after the 2012 reforms. Reduced requirements allowed developers to offer less expensive housing. The reforms standardized parking policies in urban centers and transit-oriented neighborhoods to match the city's land use and transportation strategies. The city's elected officials successfully promoted parking reforms' economic, environmental, and equity benefits.

» Parking reforms in 2018 built on 2012's lessons. These reforms addressed opposition to reduced parking near high-frequency transit. They also improved the land-use code to make parking policy more effective and environmentally friendly.

## Other Examples of Modernized Approach to Parking

**THE WAYZATA BAY CENTER** was a shopping center built in the 1960s on a 14.5-acre, five-block site in an affluent Minneapolis suburb located along Lake Minnetonka. It was constructed on wetlands without a stormwater system, and contaminated stormwater runoff from the shopping center's vast parking lots regularly ended up in Lake Minnetonka. The site was redeveloped with a mixed-use neighborhood with two condominium properties, senior and assisted living facilities, office and commercial space, a hotel, and a community Great Lawn. Despite the addition of significant commercial, office, and multifamily square footage, the site has just 1,500 parking spaces. That is roughly one parking space per 500 square feet of development   , approximately half the number of spaces typically required if the use was entirely retail.

In 2015, **FAYETTEVILLE,** a city in **ARKANSAS** with a population of 94,000 residents, became the first city in the United States to eliminate commercial parking minimums from its city code. Prior to this change, restaurants were required to provide one parking space per 100 square feet, and retail establishments were required to provide one space per 250 square feet. However, the city retained the maximum parking ratios in effect. There were concerns among residents and city officials about the potential impact of this change on property values and the livability of the city. However, contrary to those expectations, the anticipated negative consequences did not materialize. Since the removal of minimum parking requirements, Fayetteville has not experienced the predicted adverse effects. This suggests that eliminating parking minimums did not have a detrimental impact on property values or the city's livability. This case serves as an example that challenges the conventional notion of parking requirements and highlights the potential benefits of reconsidering and adjusting parking regulations in urban areas.

**THE BREWERY BLOCKS** is a five-block site in Portland's Pearl District. The Brewery Blocks combines the adaptive reuse of the Weinhard Brewhouse, the Armory Building, and the Chevrolet Auto Dealership with ground up construction of new buildings. They are located a half mile from MAX stations serving all five light rail lines and are directly adjacent to the Portland Streetcar. The project was completed in 2006 and includes 1.5 million square feet of residential, retail, and office space and 242 housing units. There is a shared underground parking garage under three of the buildings. There are 1,300 parking spaces in the underground garage, a ratio of 0.87 spaces per 1,000 square feet of rentable building area. Shared parking reduced the number of total parking spaces needed, compared to the typical ratios for apartments, office, and retail space. The need for retail, restaurant, entertainment, and residential parking is typically highest in the evening, while office demand is highest during the day.

In August 2021, **PORTLAND** implemented a **CITY-WIDE POLICY** called the **RESIDENTIAL INFILL PLAN (RIP)**, which applies to all low-density residential zones in the city. RIP aims to promote denser residential development by allowing up to four units on each residential lot, or up to six units if half of them are affordable. As part of RIP, the parking rules for residential uses were modified to prioritize land utilization for people rather than cars. The following changes were implemented:

1. Elimination of parking minimums: RIP removed the requirement for a minimum number of parking spaces for residential properties.
2. Use of alleys for parking access: Lots with alleys are now required to utilize those alleys for parking access.
3. Limitations on street-facing garages: Street-facing garages are restricted to occupying 50% or less of the building facade.
4. Prohibition of parking between the front of the building and the street: RIP prohibits parking spaces located between the front of the building and the street.
5. Elimination of paved driveways: RIP no longer mandates the provision of paved driveways.

These modifications aim to encourage more efficient land use and discourage excessive space allocated to parking. By relaxing

parking requirements, RIP promotes housing affordability and encourages the development of more residential units in low-density residential areas of Portland. Portland's elimination of parking minimums in residential areas came after the passage of statewide middle housing legislation in 2019 that included a limit on how many off-street parking spaces could be required. Under the state's rule, developments in cities located within urban growth boundaries cannot be required to provide more than one space per home.

To evaluate the appropriate amount of parking to be built and assist developers and municipalities in making informed decisions, **KING COUNTY WASHINGTON** issued a report called **"RIGHT SIZE PARKING."** Alongside the report, the County and its partners developed the King County Multifamily Residential Parking Calculator, which was funded through a grant from the Federal Highway Administration's Value Pricing Program. The parking calculator utilizes statistical modeling to determine the current average parking per unit ratio and identifies the optimal parking capacity. Users of the tool can input building and pricing data

to estimate the suitable amount of parking to be constructed. Additionally, a pro forma tool is available to help users estimate the cost of providing the required parking.

These resources provided by King County aim to provide data-driven insights into parking supply and assist stakeholders in making informed decisions regarding parking requirements and development costs. By utilizing statistical modeling and cost estimation tools, developers and municipalities can better assess parking needs and optimize the utilization of space and resources. The final report notes that parking increases the cost of market rate housing and reduces the supply of affordable housing. In multi-family housing that provides "free" tenant parking, tenants without cars bear the cost of their neighbors' parking spaces through higher rent. Parking is also extremely costly to provide, and parking fees do not make up the full cost paid by developers. The report also found that there was a 40 percent oversupply of parking at multi-family properties.

# Where and how?
## Policies, Strategies, & their Contextual Suitability

**This section presents a toolbox of policy choices and strategies, discusses their suitability, and describes how to go about changing parking regulations and adopting parking strategies that best speak to the needs of the community. To promote multimodal mobility, sustainability, equity, and resiliency, communities are adopting policies and strategies such as implementing mixed-use development, integrating transportation demand management programs, prioritizing transit-oriented development, and incorporating smart parking technologies. These efforts aim to reduce parking demand, promote alternative modes of transportation, and create more vibrant and livable communities.**

There are several elements about the community that can be studied to get an accurate depiction of the parking system as well as the community characteristics that impact the parking system. These include:

» Analysis based on community behaviors

» Identify performance metrics

» Create supportive policies

» Implement incentives and disincentives

» Identify effective technology

» Awareness of impact to and from land-uses

» Leverage alternative transportation

## Performance Metrics

To analyze the effectiveness and efficiency of parking systems, there are several key metrics to consider:

» **Parking Utilization:** The most common metric is parking utilization or occupancy. The number of occupied parking spaces is divided by the total number of available spaces to arrive at the occupancy rate, which measures how often parking spaces are used. This gives information about the demand for parking and indicates whether there is an abundance or a shortage of parking.

» **Parking Turnover Rate:** The number of vehicles parked over a specified amount of time is divided by the total number of spaces available to determine the turnover rate,

which shows how quickly parking spaces are being used. It helps in evaluating the effectiveness of parking utilization and the simplicity of locating a parking space.

» **Average Dwell Time or Duration of Stay:** This metric calculates the typical duration of time cars are parked in a particular location or building. It provides insight into parking demand patterns and identifies problems like long-term parking in short-term spaces or whether parking duration matches intended use.

» **Parking Revenue:** Revenue generation metrics, such as parking fees, fines, and other revenue sources, are used to evaluate the financial performance of parking facilities. It is used to assess cost recovery and potential funding for parking-related initiatives, as well as the economic viability of parking operations.

» **Mode Share:** The percentage of trips taken in various forms of transportation, such as private cars, public transportation, bicycles, or foot, is examined by mode share metrics. It is possible to assess the success of parking policies and strategies in promoting alternate modes of transportation and lowering reliance on private vehicles by understanding the mode share.

Depending on the goals and objectives of the community, other metrics such as customer satisfaction, environmental impacts, etc., could also inform the choice of policy or strategies that would work best for the community. Data for these performance metrics can be collected through various methods, including parking surveys, sensor technologies, transaction data, user feedback, and observational studies.

# What approach to parking is needed at transit stations and transit-oriented developments?

At transit stations and transit-oriented developments (TODs), a comprehensive approach to parking is needed to align with the goals of promoting transit usage, encouraging active mobility options, and reducing reliance on single-occupancy vehicles. Parking approaches at transit stations and TODs needs to consider:

» **Leveraging Proximity to Transit:** The design and planning of transit stations and TODs should prioritize convenient access to transit infrastructure. This includes providing well-designed pedestrian and bicycle connections, ensuring safe and accessible pathways to transit facilities, and integrating amenities that support active mobility options. The goal is to enable residents, employees, and visitors to easily utilize transit and non-motorized transportation choices.

» **Efficient Management of Park-and-Ride Spaces:** Park-and-ride facilities play a crucial role in accommodating commuter needs. It is essential to deploy, manage, and price these spaces effectively to ensure their efficient use and facilitate seamless connections between transit and other modes of transportation. This can involve implementing parking management strategies such as dynamic pricing, time limits, or permits to encourage turnover and maximize utilization.

» **Shared Parking and Reduced Parking Requirements:** Implementing shared parking strategies and reducing parking requirements within station districts or TODs can help optimize parking supplies. By recognizing the reduced reliance on automobiles within these areas, parking requirements can be right-sized to meet the actual demand. This supports efficient land use, reduces unnecessary parking construction, and encourages the use of alternative transportation options.

» **Emphasis on High-Quality Transit and Pedestrian Infrastructure:** TODs, by their nature, are designed to promote transit usage and reduce the dependency on automobiles. These developments should prioritize the integration of high-quality transit infrastructure, such as well-designed transit stations and transit-oriented street networks.

Additionally, creating pedestrian-friendly environments with enhanced walkability, access to amenities, and public spaces can further encourage transit usage and reduce the need for extensive parking provision.

**In summary,** an integrated approach to parking at transit stations and TODs should prioritize transit access, promote active mobility options, efficiently manage park-and-ride spaces, implement shared parking strategies, and design high-quality transit and pedestrian infrastructure. These strategies collectively contribute to reducing automobile dependency, maximizing land use efficiency, and creating sustainable and vibrant communities centered around transit accessibility.

# TRANSIT PROXIMITY REDUCES PARKING DEMAND

A parking survey conducted by **City of Palo Alto** to study multi-family residential including market rate, affordable, and senior housing at sites located at various distances to transit concluded that **proximity to transit can reduce the parking demand** by approximately **25 PERCENT** for **both affordable and market rate units.**
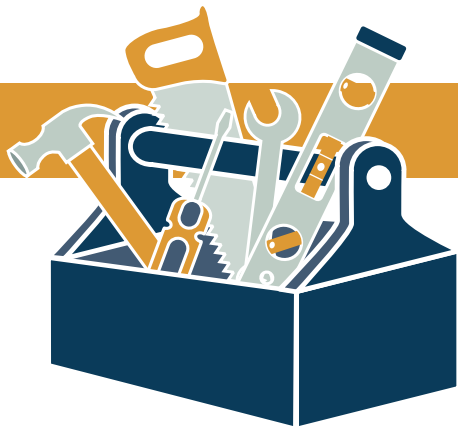
## Context Sensitive Policies & Strategies

**One size does not fit all - which is why parking policies and strategies need to be context-sensitive to be effective and produce desired outcomes that match expectations and have a positive impact on the community.** Each community has unique characteristics which influence people's travel behavior, mode share, and parking demand. These influencing variables, or "Ds," include development density, diversity of uses, development scale, design of development, demographics, and distance to accessible and convenient transit. By considering these influencing variables, communities can develop a mix of policies and strategies to effectively manage parking demand and promote more sustainable transportation options. Provided below is a description of key policies and strategies to consider.

## Policy Options

### Lowering Parking Minimums

This measure involves reducing the minimum parking supply required at a new development. Research indicates that minimum parking requirements for new developments do not recognize the fundamental fact that project features and their contextual setting have a significant influence on their parking demand. By not forcing a higher minimum parking ratio, it allows the developers and landowners with added flexibility to provide parking that is context sensitive and avoid building excess parking supplies that is never utilized. This policy can also lead to a more walkable environment when less land is dedicated to parking and enable more trips to be made on foot, bike, or by transit. This policy change promotes efficient use of land as observed under case studies of many cities who have made this change.

Parking infrastructure is expensive to build and maintain, and these costs are often passed on to residents and businesses. By reducing parking requirements, developers can save on construction costs, allowing for more affordable housing options and reducing the financial burden on businesses, ultimately leading to more affordable overall development.

**Transportation infrastructure, transit accessibility, and neighborhood characteristics must be considered when lowering parking minimums.** To ensure the policy change meets community needs, developers, residents, and transportation experts must be involved. Evidence of the effects of reduced parking supply is strongest for residential developments.

### Eliminating Parking Minimums

This policy measure entails eliminating the requirement that new developments provide a minimum number of parking spaces. This shift in policy has gained traction as a means to address a variety of urban challenges and promote a more sustainable and people-centered development. This policy changes some of the same benefits identified above under lower parking minimums. However, eliminating parking minimums may not be suitable for all communities or development settings.

To supplement this policy change, contextual factors such as access to high-quality transit, mature active transportation modes, dense urban environments and connectivity are important for the success of this measure. Additionally, **implementing complementary strategies such as parking management programs, shared parking arrangements, and investments in alternative transportation infrastructure can enhance the effectiveness of eliminating minimum parking requirements.**

This policy approach empowers communities to adopt a more flexible, market-responsive, and sustainable approach to parking provision while promoting efficient land use, affordability, and sustainable transportation options.

## Parking Maximums

This policy involves setting an upper limit on the number of parking spaces allowed for a specific development or area. Unlike minimum parking requirements, which require a minimum number of parking spaces, parking maximums limit excessive parking supply Many times oversupply of parking is caused by developers providing more parking than is required by the municipal code. Similar to the above two strategies, parking maximums foster more efficient use of land and prevent dedicating more land than required towards parking. Generally, parking maximums incentivize travel by non-automobile modes, promote affordability, and land productivity, denser development, and pedestrian friendly and aesthetically appealing urban environments by limiting the excessing surface or structured parking.

This measure is less effective in locations where unrestricted street parking or other off-site parking is available nearby and has adequate capacity to accommodate project-related vehicle parking demand. Similar to the above policies, to increase the effectiveness of this policy, it should be supplemented with other parking management strategies such as parking pricing, shared parking, and suitable transportation demand management measures.

## Shared Parking Policy

A shared parking policy allows for two or more land uses to share parking spaces without conflict or encroachment. The ability to share parking spaces is the result of two conditions: Variations in the accumulation of vehicles by hour, by day, or by season at the individual land uses; or/and relationships among the land uses that result in visiting multiple land uses on the same auto trip.

Shared parking can maximize the use and efficiency of existing parking facilities, reduce the need to provide more parking, and enable more compact development. To be successful, shared parking requires that each component of the shared parking agreement have complementary parking patterns (i.e., peak parking occurring during different periods of the day). Additionally, shared parking agreements should be reviewed to ensure that parking demand does not exceed supply. For instance, the parking lots of religious institutions are generally full on the weekends, but empty during the week. Such institutions can lease their parking lots to nearby office buildings, which conversely require higher amounts of parking during the week and low amounts during the weekends. These types of arrangements result in both land uses satisfying their parking needs without building additional parking facilities.

### 🗝 Key Benefits of Shared Parking

» **Efficient use of parking spaces** by allocating them based on different time periods and temporal demand patterns for various land uses.

» **Cost savings** for developers and landowners by reducing the amount of parking that needs to be constructed and maintained. This translates to affordable housing and commercial spaces.

» **Promotes flexibility and adaptability** for developers, property owners, and businesses to meet parking requirements more efficiently.

» A lower number of parking spaces means **enhanced walkability,** and an incentive for cycling and public transportation use.

To implement shared parking, careful planning, coordination, and management is needed. A detailed shared parking assessment is typically needed to understand the temporal demand for land-uses, unique needs of different land-uses, guidelines of sharing and cooperation between landowners/operators.

## Bicycle Parking Policy

Adopting a robust bicycle parking policy can go a long way in reducing automobile travel and parking demand and promote sustainable mobility options. A bicycle parking policy has following elements:

» **Bicycle parking infrastructure** such as racks, shelters, or secure bike parking facilities encourage more people to shift to bicycle as a mode of choice. Both the number and the convenient location of parking spaces matter for a successful bicycle policy.

» **Bicycle parking facilities should be safe** and should be able to accommodate different type of bikes and types. Facilities with good locking mechanisms and surveillance systems enhance the safety and confidence of cyclists, promoting greater bicycle usage and reducing reliance on car parking.

» **Offering incentives to businesses and developers** who provide enhanced bicycle parking can be an effective tool to encourage better infrastructure for the biking community. Cities such as Los Angeles offer credit towards conversion of a quarter of the required parking spaces to bicycle parking, which can be a cost incentive for developers.

» For the policy to be effective, it must be **supplemented and coordinated with investment** on transportation infrastructure, which makes bike travel convenient and low-stress with seamless connections throughout a region.

» **Proper community outreach,** awareness and education can help promote the benefits of biking and its contribution to larger objectives of the community.

» Public agencies can also **incentivize new developments to provide enhanced amenities for bike commuters** such as indoor parking with adequate lighting, electrical outlets, and racks to secure bikes, showers, lockers, bike repair stations, etc. These incentives can be in the form of impact fee or development fee credits.

In a 2016 survey of bicycle commuting in American cities published by the League of American Bicyclists, **Utah ranked 16th among all 50 states** with **0.7 percent of population commuting by bike**. **In Salt Lake City**, approximately **2.1 percent of the people commuted via bike**.

# Parking Management Strategies

Provided below is a description of various parking management strategies that can help right-size parking supply, optimize utilization of parking resources, incentivize non-automobile travel, and by reducing parking demand, free up real-estate locked in parking for higher and better use.

## Unbundle/Price Residential Parking

This strategy involves separating the cost of leasing or owning a parking space from the cost of leasing or owning a residential unit. Traditionally, parking spaces are offered with the purchase or lease of a multifamily residential unit. The reality is that cost is built-in to the total price and, even if someone wanted to not own or lease parking with the unit, they are indirectly bearing the cost of constructing and maintaining the parking. This has resulted in disincentivizing residents to use other modes of travel.

Unbundling parking decouples the cost of parking from the unit. It provides the flexibility to only use parking if needed. The cost savings

from construction of fewer parking spaces can be passed along to residents, enhancing housing affordability. Research shows that for a typical affordable housing development, **adding one space per unit increased leasing costs by about 12.5 percent**; **adding two parking spaces increases leasing costs by about 25 percent.** For this strategy to be successful, local transportation infrastructure, density of development, and market conditions should be suitable.

## Enhanced Pedestrian & Bike Network

Similar to the above transit strategy, enhancing pedestrian and bike infrastructure such as sidewalks, crosswalks, bike lanes, protected bike paths, bicycle parking, etc., can incentivize people to not use an automobile to make short trips. A well-connected, safe, low-stress, and aesthetically appealing network of active transportation facilities can significantly change the mode share and reduce parking demand. In addition to benefits from reducing parking demand, improving pedestrian and bicycle facilities promotes healthier lifestyles and reduces traffic congestion within communities.

## Enhanced Transit

Investments in high-quality, frequent, and reliable transit network can be a game changer in reducing parking demand by providing commuters and other travelers an attractive alternative to driving, and as a result, reduce parking demand both at the origin and the destination of trips. A successfully operated transit network can provide convenient access to

destinations and encourage people to shift their travel mode.

Transit-oriented development around major stops and stations typically features a mix of uses including residents who depend on transit for their daily commute. Because many trips occur on transit, this type of development has a much lower parking demand compared to similar development without direct transit access. Investing in transit-related amenities and integrating high-capacity transit with local buses, bike-share system, ride-sharing services, and transportation network companies can allow people to plan their trip connecting with various destinations without the use of their personal vehicle and reduce parking demand.

## Increased Development Intensity

More intense or compact development maximizes efficient use of land and reduces parking demand because many trips can be completed on other modes such as walking and biking. Mixed-use development, a common feature of more intense development, reduces the need for long-distance trips in automobiles as most of the daily necessities are easily accessible within a relatively small radius. Compact development is conducive to shared parking arrangements and therefore reduces parking demand. Transit investments are more feasible for communities that have high development intensities and adequate number of riders within small distance to stop or station areas.

## Price/Cash-Out Workplace Parking

Under a parking cash-out program, the employer offers workers the cash value of the cost of parking space that is provided. This generally works if an employer leases parking for their employees separate from building space. The leased spaces can be on-site or offsite. Many employees choose to trade their parking space for cash and commute to work using other travel modes. The cash out offer usually costs the employer nothing because it reduces expenditure on employee parking.

## Priority Carpool Parking

This strategy encourages carpooling by providing a designated and convenient space for carpool vehicles. By making the parking experience convenient and, in many cases, free, the strategy helps in reducing parking demand from single-occupancy vehicles. The strategy also incentivizes ride-sharing and reduces traffic congestion. Carpoolers can share the cost of commuting using a vehicle and may save the cost of parking. This strategy requires careful planning and coordination between carpoolers, employers, property owners and parking management staff for the program to be successful and yield the desired results.

## Advanced Wayfinding & Parking User Technology

Good signage can direct parkers to available spaces quickly and efficiently. An integrated parking guidance system includes wayfinding signage, digital displays, and mobile applications

to assist motorists in locating parking spaces. This strategy contributes to a more efficient use of parking spaces and can be used to effectively direct motorists to lesser-known or less-desired spaces within a district. A successful guidance system can reduce unnecessary vehicle circulation, thereby reducing congestion and vehicle-pedestrian collisions. The convenience and effectiveness of parking operations are improved by using technology-based solutions, such as smart meters, mobile payment apps, or real-time parking availability information. By simplifying payment procedures and providing real-time parking data, smart parking technology facilitates efficient parking management

## Parking Time Limits

Time limits are the simplest way to control the use of both on-street and off-street parking. Time-based parking restrictions prohibit parking for certain periods to preserve roadway capacity during peak commuting periods and to save parking resources for particular user groups. In residential areas adjacent to commercial areas, parking time limits are used to discourage long-term parking by employees of the businesses in the commercial areas. In commercial areas, typically by petition of the business/property owners, time limits are used to encourage turnover of parking spaces to provide short-term parking for visitors to the commercial areas. Time limit for spaces can be adjusted to reflect the particular purpose for the parking. The limits can be established on a differential basis to direct all-day parkers to underutilized spaces. Implementing time restrictions on parking and enforcement are intrinsically linked. Once the

time limits are set, it is imperative to have a system to ensure compliance, which is where enforcement plays its part for a successful outcome of this strategy. Part of the revenue from fines pays for the enforcement and administration of parking time limits. An effective system of enforcement can provide valuable data back to the agency about parking behaviors, demands, and patterns. This data can then be used to further refine strategies.

## Demand-Based Parking Pricing

A system of differentiated parking based on demand is a key element in encouraging drivers to use parking efficiently, by gaining the most productivity from the most attractive on-street spaces and discouraging automobile travel during peak demand hours. Demand-based pricing also increases turnover as motorists may be sensitive to higher prices during high-demand hours and will avoid overstaying at a desired parking spot. There are many alternatives for collecting on-street parking charges, ranging from traditional parking for on-street meters, to centralized parking machines at parking facilities. The parking system can be programmed to implement different parking charges by day of the week depending upon demand, differentiate between short- and long-term use, time of day, and the location of particular parking space.

# Parking Modernization Tool

This spreadsheet tool has been developed using the knowledge of research and best practices along with review of several case studies as part of development of this guidebook to provide a simple, yet effective, way for anyone to identify potential policies and strategy options that may be applicable to the unique contextual setting of a community in Utah. The tool is a separate Microsoft Excel file accompanying this guidebook.

Under the input tab, a user can click on all the applicable contextual features such as community setting (rural, suburban, mixed-use, urban core, or TOD), intersecting density reflecting connectivity, quality of transit infrastructure, quality of bicycle infrastructure, type of parking available, and primary land-use types. Once the user has entered this information in the tool, the tool will suggest suitable policy and strategy options for the user to consider.

The user can toggle through the various suggested options and review a brief description if needed. Upon selecting the desired set of options from the ones suggested by the tool, the user can review an estimated range of effectiveness (in percentage) of the policy and strategy options in reducing parking demand.

# Step-by-Step Guide

Provided below is a step-by-step instruction on how to use the tool and its various features.

Open the Excel file and familiarize yourself with the layout of the tool. The tool has two main sections:

» The **"1 Land Use" tab** is where you will enter information about the proposed development.

» The **"2 Report" tab** will display the results of the calculations.

Additional hidden tabs include **backend and calculation tabs** where the tool will calculate the potential reductions in parking demand based on the factors selected in "1 Land Use."

The following steps outline how to use the tool.

## ❶ Step One

Select the "1 Land Use" tab to enter details about the project. The first four cells are where the user should type in the following details:

» **Project name:** The name of the proposed development.

» **Location:** The location of the proposed development.

» **Lead Agency:** The metropolitan planning area where the development is located.

» **Analyst:** The name of the person using the tool.



## ❷ Step Two

Add the following details about the traffic network surrounding the development:

» How rural or urban is the project area?

» What is the intersection density in the project area?

» How comprehensive is the transit service?

» How comprehensive is the bicycle infrastructure?

» Is parking allowed on-street, off-street, or both?

» What are the primary land uses at the project?

## ③ Step Three

Select up to two land uses that will drive the parking demand at the project. If there are more than two land uses in the project, select the two with the highest parking demand.



## ④ Step Four

Select up to five strategies and up to four policy options to be implemented at the development. Options that are incompatible with previously selected criteria cannot be selected.

Note that a text box at the bottom of the tab will provide a description of the most recently selected strategy or policy. A second text box will show a live estimate of the parking reduction based on the current selections.



## ⑤ Step Five

Once you have entered all of the information in the "1 Land Use" tab, select the "2 Report tab." The tool will then generate a printable report that includes the previous project details and calculates the potential reductions in parking demand.

You can use the results of the calculations to make informed decisions about parking for the proposed development. For example, you may decide to reduce the number of parking spaces required by the zoning code, or you may decide to implement alternative transportation options, such as bike sharing or public transit.

Here are some additional tips for using the tool:

» Make sure to enter accurate and up-to-date information.

» The tool is based on national averages, so your results may vary depending on the specific characteristics of your development.

» You can use the tool to compare the potential impacts of different parking reduction strategies and policies.

» The tool is a valuable tool for planning and is designed to be used for estimating potential reductions in parking demand. It is not a substitute for a comprehensive parking study.

# References

»  Phase 1 – Summary Report, Utah Parking Modernization Initiative, April 2021

»  Transportation Cost and Benefit Analysis II – Parking Cost, Victoria Transportation Policy Institute (www.VTPI.org)

»  Transportation Cost and Benefit Analysis II – Parking Costs, Victoria Transport Policy Institute (www.vtpi.org), March 2020.

»  Amélie Y. Davis, Bryan C. Pijanowski, Kimberly D. Robinson and Paul B. Kidwell (2010), Estimating Parking Lot Footprints in The Upper Great Lakes Region of the USA Landscape and Urban Planning, Vol. 96, Issue 2, 30 May 2010, pp. 68-77.

»  Mikhail Chester, et al. (2015), Parking Infrastructure: A Constraint or Opportunity for Urban Redevelopment? A Study of Los Angeles County Parking Supply and Growth, Journal of the American Planning Association, Vol. 81, No. 4, pp. 268-286

»  High Cost of Free Parking, Donald Shoup, 2005

»  University of Utah – Comparative Case Studies: Trip and Parking Generation at Orenco Station TOD, Portland Region and Station Park TAD, Salt Lake City Region, Reid Ewing, Guang Tian, Keunhyun Park, Sadegh Sabouri, Preston Stinger, David Proffitt

»  Portland's biggest, baddest bike parking facility is about to open, Bike Portland, Michael Andersen, May, 2016

»  Lloyd District Development Strategy, Portland Development Commission, July, 2001.

»  Hassalo on Eighth, Masterplan and Site Design, NextPortland, March 2015. https://www.nextportland.com/2015/03/02/hassalo-on-eighth-pt-i/

»  Case Study II.13 – Promenade of Wayzata, Minnesota

»  Top Projects of 2018: The Promenade of Wayzata, Dick Dahl, July 26, 2019

»  Lloyd Blocks, GBD Architects, https://www.gbdarchitects.com/portfolio-item/hassalo-on-eighth-2/

» Centers case study Hollywood Library and Bookmark Apartments, Meganne Steele, https://www.oregonmetro.gov/sites/default/files/2014/05/06/06012005_hollywood_library_bookmark_apartments_centers_case_study.pdf, October 2005.

» Brewery Blocks Green Building Features, http://www.breweryblocks.com/history/green.php

» Orem City (2014), "Economic Development Strategy Plan," Zions Bank Public Finance, 2014, p. 49

» WHAT IS A PBID - DISTRICT BOUNDARIES, Old Pasadena, California. https://www.oldpasadena.org/old-pasadena-management-district/what-is-a-pbid-district-boundaries/

» Donald Shoup, "High Cost Of Free Parking", Updated Edition, June, 2011.

» Carl Walker (2016), "Mean Construction Costs," Carl Walker Consulting, 2016

» VTPI (2020), "Transportation Cost and Benefit Analysis II – Parking Costs," VTPI, 2020, pp.12-13

» USDOT (1992), "Summary of Travel Trends: 1990 Nationwide Personal Transportation Survey," USDOT, 1992

» Parking Management: Strategies, Evaluation and Planning, Todd Litman, 2008.

» Right Size Parking, King County Metro, Fehr & Peers, VIA, Rick Williams Consulting, Kidder Mathews, 2015

» Mariia Zimmerman, "Parking: A major Barrier to Equitable Oriented Transit, Rethinking Parking Policy to Achieve eTOD", Strong, Prosperous, And Resilient Communities Challenge (SPARCC), February 2020.

» How Can We Maximize Efficiency and Increase Person Occupancy at Overcrowded Park and Rides, Prepared for Washington State Department of Transportation by Vikash V. Gayah, Krae Stieffenhofer, and Venky Shankar, June 2014

» Trip and Parking Generation at Transit-Oriented Developments: Five US Case Studies, Reid Ewing, Guang Tian, Torrey Lyons, Kathryn Terzano, College of Architecture and Planning, University of Utah, 2017

» Parking Generation Manual, 5th Edition, Institute of Transportation Engineers, 2019

» Traffic Generation by Mixed-Use Developments – A Six-Region Study using Consistent Built Environment Measures, Ewing et al., ASCE Journal of Urban Planning and Development, September 2011

» MXD+, Trip Generation Model to Accurately estimate trips, VMT and GHG generated by Mixed Use Developments, www.fehrandpeers.com/mxd

» Trip and Parking Demand Study, Infill and Complete Streets: Capturing VMT Impacts and Benefits Pursuant to California Environmental Quality Act, City of Los Angeles Department of Transportation, April 2017.

» Staff Report, Planning & Transportation Commission, City of Palo Alto: Multi-Family Parking Demand Technical Memo, May 2018

» Parking Management Best Practices, Todd Litman, 2006

» Parking Management: Strategies, Evaluation, and Planning, Todd Litman, September 2008

» University of Utah – Comparative Case Studies: Trip and Parking Generation at Orenco Station TOD, Portland Region and Station Park TAD, Salt Lake City Region

» Right Size Parking, King County Metro, August 2015, https://rightsizeparking.org/

» Article "The Bottom-Up Revolution Is...Ending Parking Minimums and Seeing the Results", Strong Towns, Jonathan Curth, June 2022

» Article "Turning Small Change Into Big Changes", Douglas Kolozvari and Donald Shoup, Fall, 2003.

» Article "Oregon Just Ended Excessive Parking Mandates on Most Urban Lots", Sightline Institute, Michael Anderse, December 2020.

» Article "No Minimum Parking Requirements? No Problem for Fayetteville, Arkansas." Sightline Institute, Catie Gould, February 2021.

» Fayetteville eliminates minimum parking requirements, Todd Gill, Wednesday, October 2015

- Residential Infill Project: Code Change Basics, City of Portland – Bureau of Development Services – 4/29/202

- HuffPost – The Environmental Impacts of Land Development Depend Largely on Where We Put It

- Dan Ionescu Architects & Planners – Wayzata Bay Center Redevelopment, Minnesota, General Plan

- Utah Transit Authority, TOD Web Tool

- Mike Mehaffy, "Orenco Station in Hillsboro, Oregon: UnSprawl Case Study," Terrain Publishing (www.terrain.org), Issue 10, Fall/Winter 2001.

- ULI, "ULI Development Case Studies: Orenco Station," Volume 29, Number 1, January-March 1999

- ULI, "ULI Development Case Studies: Fruitvale Village I," Volume 35, Number 4, January-March 2005

- "Trip and parking generation at transit-oriented developments: Five US case studies," Reid Ewing, Guang Tian, Torrey Lyons, Kathryn Terzano December 2016

- Critical Sustainabilities: Competing Discourses of Urban Development in California, "Fruitvale Transit Village," Jen Gray-O'Connor, June 2015.

- "Fruitvale Village (Phase 2) Approved Plan", City of Oakland, May 2010

- "Fruitvale Transit Village (Phase 2) Final Environmental Impact Report," ESA, April 2010

- Minus Minimums: Development Response to the Removal of minimum Parking Requirements in Buffalo (NY), Daniel Baldwin Hess and Jeffery Rehler, 2021

- SDCI Takes A Stab at Parking Reforms, Doug Trumm, The Urbanist, September 19, 2017

- Seattle SDCI – Short Summary of Neighborhood Parking Ordinance #125558, www.Seattle.gov

- Deep Dive: SDCI's Draft Proposal to Improve Parking Availability, Stephen Fesler, The Urbanist, September 2017.

- How Developers Respond to Parking Reform – Reducing minimum parking requirements can help alleviate urban housing crises, 2020, C.J. Gabe, Gregory Pierce, Gordon Clowers

# Appendices

**Appendix A:** Utah Parking Modernization Phase One Guidebook

**Appendix B:** Summary of Literature Review
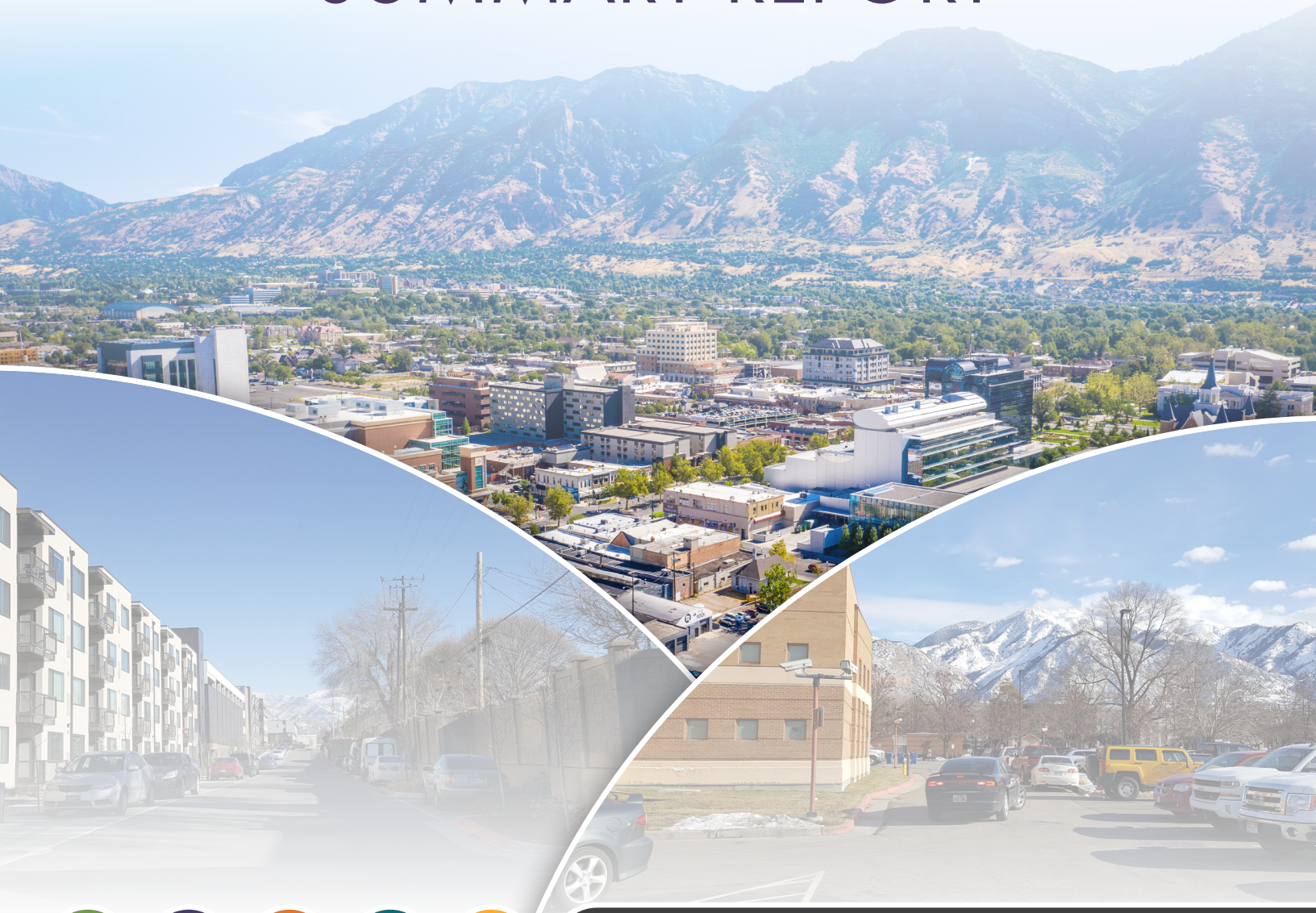
**Appendix C:** Parking Economic Analysis and Case Studies

**Appendix D:** Parking Modernization Case Studies

# PHASE 1

## SUMMARY REPORT

UTAH PARKING MODERNIZATION INITIATIVE

April 2021

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# 1. Executive Summary

# 1. Executive Summary

The Wasatch Front is comprised of many communities, of varying sizes and character. Each has their own unique history and want different things for their future. Add to that, the nature of transportation is changing rapidly. Transportation Network Companies, such as Uber and Lyft have added to the already high demands on curb space, but these companies have created a focus on both how the curb is managed to accommodate increased and sporadic passenger loading. These companies, as well as scooter and bike share companies have incorporated technology to cover everything from tracking usage to transactions. Technological advances beyond a service app have boomed as well, using smartphone devices to locate and pay for parking. Then there are the impacts of COVID-19 and how teleworking became a normal and sometimes preferred option for some, businesses have been negatively impacted in many communities, bicycle sales and usage has boomed across the nation, and curbside use has become even more diverse with more drop-off/pick-ups locations or as restaurants and stores expand their space to the curb.

Cities are growing in different and faster ways than they have before. It is easy to consider all of these changes or advances in isolation. However, they impact each other and have larger implications on how a city grows. For instance, as more people work from home, or use bikes and transit to commute, or TNCs to go out with friends, this means that there are less cars that need to be parked at these destinations. As these transportation trends evolve, how can cities ensure their parking codes and regulations are modernized to support what is existing as well as what will come in the future?

The Parking Modernization Initiative looks at the interrelated nature of parking and identifies strategies that will help cities across the region modernize their approach to parking management.

**Modernization of parking regulations and policy is necessary to:**

| Improve transit ridership | Reduce use of single occupancy vehicles | Improve bike and pedestrian connectivity | Right-Size parking to support growth | Right-Size parking to support growth |

## Partnership Study Findings

A review of parking in two partnership cities – Ogden City and City of South Salt Lake – was conducted as part of the Initiative. The intention of doing parking studies for two cities in the Region was to examine local practices, travel patterns, and identify localized strategies for the Region.

Many communities will rely on antiquated parking codes or national standards. Neither option is ideal for helping cities face the current transportation trends. Local data is necessary to help the Region modernize parking practices and regulations.

In both Ogden City and South Salt Lake, the parking occupancies were found to be low, indicating that the parking Codes for land uses requires developers to build too much parking. The impact those requirements create has both cities in a reactive state with development with regard to provision of parking, rather than proactive. For both cities, a number of strategies were identified to align parking requirements with the localized demand. Strategies were also identified to help the cities create a comprehensive and proactive management approach to parking.

## Parking Management Strategies

Based on the findings of the Partnership Studies, Peer City Roundtable, developer discussion, and best practices literature review, a number of strategies were identified that would guide the communities in the Region to modernize their approach to parking management. A key takeaway for this Initiative is that while these strategies are effective in their own right, implementing many of them to create a comprehensive parking will be more successful and sustainable.

| Strategy | Description | Impact[1] |
|---|---|---|
| Right-Size Parking Requirements | Aligns parking requirements with actual parking needs in the community and to transition to a system that utilizes shared and leased parking supply. | • Encourages development feasibility<br>• Supports infill development<br>• Encourages high density, mixed-use land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Plan for Mobility Hubs | Transit stations or centers that bring together many different forms of transportation in one location. They may also have other forms of land uses as well to provide convenience for users. | • Enhances mobility by connecting many forms of transportation in one location<br>• Encourages multimodal transportation<br>• 5-15% reduced parking demand[1] |
| Enforcement | Enforcement ensures compliance with parking regulations, which improve overall system efficiency. | • Encourages compliance with parking regulations, which encourages parking efficiency<br>• Impact varies with regard to parking demand |
| Transit Station Parking Planning | Managing transit station parking supports and encourages transit ridership by preserving adequate parking spaces for transit users. | • Supports transit ridership by securing parking for riders<br>• 10-30% reduced parking demand[1] |

| Strategy | Description | Impact[1] |
|---|---|---|
| Curb Lane Management | Operate and manage the various curb uses effectively to provide access for a variety of users. | • Efficient use of curb space for all users<br>• 10-30% reduced parking demand[1] |
| Data-Based Decision Making | Use of local data to monitor the parking system and inform policy and practice changes. | • Tracks and monitors parking program trends<br>• No parking demand impacts |
| Annual Reporting | An annual report communicates data analyses and changes to the parking system. Used as a monitoring and communication tool. | • Tracks and monitors parking program trends<br>• Effective parking program communication tool<br>• No parking demand impacts |
| Flexible Shared Parking | Shared parking is meant to optimize the use of the parking facility by providing more opportunities for use by various properties, which optimizes the use of the parking facility and allows properties to meet their parking demands. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages high density, mixed-use land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Repurpose Underutilized Parking and Infill Opportunities | Lots that are underutilized can be repurposed temporarily or slated for infill development. | • Encourages clustered land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Parking Permit Program | Parking permit programs protect parking spaces for people parking for long periods of time consistently, such as residents or employees. | • Distribution of parking demand to optimize use of existing assets<br>• 10-30% reduced parking demand[1] |
| New Parking Supply for Economic Development | Development of a comprehensive approach to planning parking infrastructure investment as a key element of community and economic development. | • Improves development feasibility<br>• Encourages "Right-Sized" parking for new development<br>• Impact varies – new parking supply encourages the use of vehicles, however, if "right-sized" and planned to optimize existing parking supply, parking demand can be reduced |
| Time Limit Restrictions | Time limits regulate how long vehicles can park in spaces to encourage the turnover of spaces. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages turnover, which improves access to businesses<br>• 10-30% reduced parking demand[1] |

| Strategy | Description | Impact[1] |
|---|---|---|
| Paid Parking | Use of meters or smartphone applications to collect a fee to park. Implemented in high demand areas to encourage turnover. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages turnover, which improves access to businesses<br>• 10-30% reduced parking demand[1] |
| Wayfinding | Themed wayfinding parking directs people to desired parking locations, effectively distributing parking demands. | • Distribution of parking demand to optimize use of existing assets<br>• 5-15% reduced parking demand[1] |
| Plan for Technology | With the wide range of technologies, and new ones continuously emerging, it is important to research and pilot test technologies prior to making the large investment and implementation. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages compliance of parking regulations, which makes parking more available and efficient<br>• Impacts vary due to the wide range of technology options and extent of their implementation and use |
| Transportation Demand Management and Mobility | Transportation Demand Management (TDM) strategies consist of programs, services, and policies designed to encourage transportation alternatives. | • Improves overall mobility<br>• Supports reduced parking ratios<br>• Encourages higher density, mixed-use development<br>• 5-30% reduced parking demand[1]– varies widely depending on the type of strategy and extent of implementation |

[1]*Victoria Transport Policy Institute, https://www.vtpi.org/tdm/tdm28.htm#_Toc128220476*

# 2. Introduction

## 2. Introduction

A partnership of the Wasatch Front Regional Council (WFRC), Mountainland Association of Governments (MAG), Salt Lake County, the Utah Department of Transportation (UDOT), and the Utah Transit Authority (UTA), with the communities along the Wasatch Front have launched the Utah Parking Modernization Initiative (Initiative).

Parking dynamics in our cities are in flux with the revolutionary changes underway in how people live, work, and get around. The "telework transformation", Uber and Lyft, "Amazonization", the COVID-19 bike boom, scooters and Greenbike are some of the words we use now that were largely not around just a decade ago. Communities and developers need to re-assess approaches to parking in order to better fit these new conditions. In other words, we all need to modernize our parking.

The Utah Parking Modernization Initiative starts with a re-assessment of parking data and strategies to help communities in Utah:

- Catch up on new trends that affect parking and mobility
- Identify ways to make parking more efficient
- Modernize their approach to managing parking consistent with their own unique goals for the future

Additionally, each community is at a different stage in their management process, ranging from the metropolitan center of Salt Lake City to more rural communities with less pressure to update parking strategies. Each community shares a desire to ensure that parking fits that needs of their community while not detracting from their community's quality of life, whatever their starting point is. Many of these challenges stem from changes in technology, travel behaviors, development patterns, and population growth.

It is important to note that this Initiative, including the data collection, began prior to the COVID-19 pandemic. At the completion of the Initiative, the full economic and transportation impacts of the pandemic have yet to be realized. Impacts to parking and mobility from COVID-19 further strengthen the point that communities need to be flexible and adapt to both minor and extreme changes to their parking system. The parking management strategies presented in this Initiative are intentionally flexible with guidance, arming communities with the knowledge and tools necessary to make informed, data-driven decisions.

## Utah Parking Modernization Initiative Goals

The goals of the Utah Parking Modernization Initiative are to:

- Reassess parking issues and opportunities for Utah communities given new and emerging conditions.
- Enable communities across the Wasatch Front to proactively manage parking and mobility.
- Use the Partnership Studies to localize data rather than relying on national standards.
- Align parking strategies with various land use typologies found within the Region.
- Determine the relative impact of strategies on land uses and development requirements to support economic development and improve housing opportunities.
- Provide a number of parking and broader mobility strategies to improve access to area businesses and develop a catalyst for community growth.
- Understand the impact of parking on mode share, housing affordability, economic development, and collective quality of life.

Development of the Utah Parking Modernization Initiative included discussions with identified peer cities, developer discussion, a review of industry best practices, and two Partnership City Studies. The two Partnership Cities, South Salt Lake and Ogden City, were selected for a more focused review of their specific parking demands and policies to identify recommendations for their respective cities. The lessons learned from those individual studies are then folded into this larger Initiative so that the Region has two case study examples of modernizing parking and mobility.

This document includes the following sections:

- Summary of literature review and peer research, including lessons learned from a peer roundtable discussion and a developer discussion
- Overview of the methodology and recommendations for each Partnership City
- Overview of parking studies and why modernization is important for communities
- Definition of performance metrics and terms used in evaluations, as well as what data is necessary to inform the performance metrics
- Compilation of strategies for the Region

# 3. Literature Review: Research and Lessons from Peers

# 3. Literature Review: Research and Lessons from Peers

As part of project initiation, a literature review was conducted of current best parking management practices. The research identified effective practices, noted challenges to implementation, identified potential community benefits, and detailed the relative impact the adoption of such practices could have on parking and/or transportation demand. The literature review also identified peer parking programs comparable to the Wasatch Front Region that could provide insight about how to best respond to growing pains and other challenges. The initial research was used to create questions for peer parking professionals and five peer cities were selected as project partners:

- Park City, Utah
- Salt Lake City, Utah
- Boise, Idaho
- Beaverton, Oregon
- Gresham, Oregon

Selection criteria included:

- Robust and active parking programs OR relative stage in parking program development
- Similar growth and parking/mobility challenges
- Comparable development environments

Initial research provided snapshots of each community, including data about their:

- On- and off-street parking inventory
- Enforcement practices
- Parking rates
- Use of parking meters and mobile apps
- Permit programs
- Ordinances

Representatives from all five peer cities participated in a virtual roundtable in the spring of 2020. The roundtable allowed the integration of the literature review with specific experiences. Representatives from Park City (UT), Salt Lake City (UT), Boise (ID), Beaverton (OR), and Gresham (OR) participated virtual roundtable.

- **Boise:** The CCDC organization is responsible for Boise's urban renewal, which includes eliminating blight, stimulating economic development, and managing parking. Boise has made a commitment to be the premiere place to live in the Treasure Valley and CCDC takes that commitment seriously. Participants included Max Clark and Matt Edmond of Boise CCDC.

- **Salt Lake City:** Parking for Salt Lake City is split into two major pieces: transportation, which is responsible for planning and studies and compliance, which handles parking enforcement. The participant included Jorge Chamorro of Salt Lake City.

- **Beaverton:** Having a parking manager is new to Beaverton and they do not currently have much enforcement. Parking management sits within the community development department, which works closely with existing enforcement. The densest area of town is the downtown core with an occupancy rate around 85% and there is a plan to build a new parking garage adjacent to a regional theatre. There are no substantive parking regulations outside of downtown. The participant was Molly Rabinovitz of Beaverton.

- **Gresham:** The City has never had parking enforcement due to limited resources and the lack of political will to create a paid parking program. They are not at the point of demand to require a formal parking program, but occupancy is telling them it is time to start planning for one. Gresham is experiencing an influx of new development in the downtown core and they are approaching a 75% occupancy tipping point that will require them to implement time limits. Participants included Katherine Kelly and Jay Higgins of Gresham.

## Key Focus Areas

### Development and Lender Experiences

The following is a summary of responses from each peer participant regarding parking strategies and actions to support new developments and businesses.

- Beaverton has been focusing on how to utilize existing inventory. Beaverton can appear to be "one big parking lot" but most parking is privately owned, and shared parking options are desirable. Beaverton is also looking at revising their downtown parking codes. A Parking Action Plan is scheduled but has been halted by COVID-19 and the City is reviewing strategies and regulations for existing supply before adding new facilities. The developer community is very active, collaborative, and keen to work on shared parking amongst themselves, existing property owners, and the City.

- Gresham's priority is curbside management and making sure a holistic approach is taken so that everything that happens at the curb is integrated with parking practices and policy – this is a new paradigm for how they talk and think about parking for the City and they are committed to taking a broader perspective versus a conventional perspective that focuses only on percentages and code. Gresham is working hard to not just look at demand and need but to see how parking impacts and fits into the bigger picture for the City and the future.

- Boise has three potential garage projects in the works and there is one developer currently building with no parking included. Boise has a difficult time with transit – there are high property values in the area and people commute in cars. There is no dedicated funding source for transit, Boise receives only 20-25% of transit funding compared to peer cities, and there are not a lot of alternatives to driving.

### Paid Parking

The following is a summary of the discussion focused on paid parking obstacles and opportunities.

- Boise City Council and the CCDC Board have invested in making Boise the most-desired location to live in the Treasure Valley and that includes having paid parking. Newcomers generally arrive from areas that also have paid parking, so it isn't a surprise or problem for them. There is a first hour free program and they were also considering adjusting rates across all garages pre-COVID-19. Boise offers off-street parking and first hour free validation programs.

- Boise is not aware of any neighboring communities charging for parking as a result of Boise charging for parking, but there is enforcement in some areas. Some communities are also considering structured parking as an incentive to build new housing and office buildings.

- Beaverton has not had paid parking since the 1980s, so people do not remember ever having to pay for parking. Paid parking is a topic of conversation as downtown reaches an 85% occupancy threshold. Beaverton is still a car-centric area but there is a desire to have more centralized parking and fewer parking lots. They are only seven miles from Portland and the concept of paid parking is not new, but it is new to consider it for the downtown core. They receive many transplants from California who are used to paid parking.

- Salt Lake City has enforcement of limited parking areas and is always looking for ways to encourage visits to downtown. In the past they have explored validation programs specifically. Validation programs have the potential to only benefit a few and should be carefully considered, implemented, and assessed.

## Shared Parking

- Beaverton recommended having a land use process for share parking where property owners can provide documents about their parking and show how hours and supply offset to serve both purposes. The City has also teamed up with the downtown association for a voluntary (no compensation) after hours program. Through this program, a daytime use business like a bank can share parking with an evening use business such as a restaurant. Pre-COVID-19, they had gained around 30 spaces with a potential of about 60 more. The City provided signage to the participants that included their desired branding elements, program hours, and legal terms. There is not as much private parking in the busiest area of downtown, so they are still figuring out ways to utilize city-owned lots.

## Curb Space / Micromobility / TNCs

Following the development discussion, the group turned to the topic of managing curb space and the presence of micromobility and transportation network companies (TNCs) in their communities.

- Beaverton does not currently have micromobility; they are wary of it arriving and are staying aware of trends and the experiences of others. They currently have more curb space in the right-of-way and less sidewalk space with no immediate pressing demands for curb lane management strategies. Their main concern is safety around the curb space.

- Gresham is thinking of how to change the conversation with elected officials and the community about what curb space means and expanding the view to consider what micromobility impacts could be. These conversations were starting pre-COVID-19 and they have also been closely observing the impacts these factors have had on Portland.

- Boise has invested heavily in creating a safe bicycle environment despite the auto-centric culture. When scooters arrived in 2018, they reduced the bikeshare numbers considerably. The City manages the scooters – used mainly between downtown and the university – and have done an effective job. There were initially some challenges with vandalism and scooter speed and numbers recede during the winter. Use has also declined because downtown Boise is empty due to COVID-19.

- Salt Lake City's Council is focused on micromobility safety and curb use. They have a base ordinance that allows the City to enter into agreements with companies and dynamically adjust the terms of agreement as needed. This helps them be responsive to micromobility trends and changes specifically. One sticking point that has come to light is that the fees to cover the cost of the City managing the micromobility and curb lane programs needs to be figured out and included in the policies.

The group agreed that micromobility solutions are challenging because the infrastructure is hard to define – cities value safety but don't want the technologies to become obsolete and even then the microtransit may not be the issue, it may be the vehicles operating with them simultaneously.

## Community Impact

Participants shared information about decisions and projects that have been especially impactful on their community.

- Six years ago, Beaverton created their Development Division to work closely with economic development agencies in the community. This successful partnership has allowed the City and those agencies to move many projects forward and has put Beaverton on the map (instead of just being Portland-adjacent). Their Restaurant Row is an example of their success and has become a destination district. People are taking notice and moving from or expanding into Beaverton from Portland to be a part of the scene, all because of the economic and social benefit of the successful partnership between the City and the economic development community.

- Gresham is especially proud of their Rockwood District, their most diverse district with over 70 languages spoken. Rockwood is in the heart of a transit center and development in partnership with that diversity is critical. They are looking at potential micromobility access points to enhance the district while keeping its culture.

- Boise shared that biting the bullet and automating their parking system was hard but worth it. The decision to automate is providing big cost savings on labor and was worth the $2 million-dollar investment. They were concerned about losing some of the friendly feel of downtown, but they are around seven years into the change, and everything is working well and they're able to move people in and out of parking much faster.

- Salt Lake City is proud of their recent enforcement approach transition. They shifted from being revenue-focused to courtesy-focused to enhance user experience. Their goal is to instill a different mentality about parking in both the staff and the community.

### Key Takeaways

- Build a strong and open relationship with developers. Include their perspective in larger projects and major changes, such as revision of the codes.

- Implement paid parking only when the data dictates the need for change with consistently high parking demands. Before making the change, communicate the intentions with the public. Know their preferences and concerns and discuss them. It may be beneficial to offer incentive programs at first, such as a first hour free program.

- Include a standard shared parking procedure as part of land use processes for property owners.

- Micromobility solutions are challenging because the infrastructure is hard to define – cities value safety but don't want the technologies to become obsolete and even then, the microtransit may not be the issue, it may be the vehicles operating with them simultaneously.

# 4. Lessons from Developers

# 4. Lessons from Developers

After hearing from the peer cities, the Steering Committee met with a developer, active in both the region and other parts of the country, to have a more in-depth discussion from the developer perspective.

The biggest takeaway from the developer discussion is the idea that parking is always a moving target and it takes continuous effort to make sure it is being optimized for a community. Developers face two critical considerations when making decisions: 1) affordability and 2) marketability.

Parking is a cost for developers, and it is a constant balance between providing enough parking for the intended tenant while also not increasing the cost of the project. Costs vary by type of parking provided and costs in the Wasatch Front Region, according to the developer, are reflected below:

- Surface Lot - $10,000-$15,000 per space
- Structure - $15,000-$30,000 per stall
- Underground - $40,000 per stall

Each space added to a project directly impacts the cost of rent. For instance, for a surface stall equates to an additional $75 per month to cover the cost of that parking stall. Furthermore, developments in more urbanized areas are more expensive than in suburban or rural areas, generally. Having additional costs for parking decreases opportunities for affordability.

Developers will adhere to the requirements put forth in a municipality's code. However, sometimes these codes do not reflect the impacts of a connected transportation network. Developers determine the right balance for parking in their projects. Finding the ideal parking ratio while providing adequate parking is a challenge to each project. Many developers will studiously and repeatedly perform occupancy counts on their properties to determine the appropriate ratio based on type of development, development setting, market, size, and proximity to transit. A typical breakeven point for parking is 80% occupancy, which generally aligns with the optimal parking occupancy thresholds described in the Parking Study Performance Metrics section of this report. This data can be used to help justify a deviation from a municipal parking requirement and to help plan accordingly for the next development.

The second main consideration for developers is marketability. There needs to be enough parking provided to support the leasing of space. Developers cannot lease apartments or commercial/office space if there are not enough parking spaces for tenants. However, as discussed, the more parking spaces provided, the greater the impacts to the cost of the project, and therefore rents. In conclusion, increasing marketability through the provision of more parking discourages affordability.

It is important to note that lenders play a key role in determining the amount of parking for a development. In some cases, lenders will not provide funding to developers if parking is not provided. The development must be marketable, and provision of parking is a key component of that. However, as success for developments is being realized in many cities across the country, lenders, in some instances, have become less strict about parking provision obligations for developments.
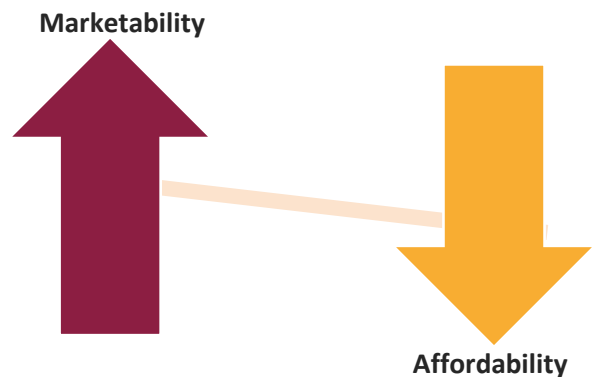
**Marketability**

**Affordability**

Developers see changing mobility trends from personal vehicles to multimodal opportunities. According to AAA data, the average individual spends approximately $900 per month to own an average, reliable, fuel-driven car. This includes the cost of gas, maintenance, registration, and insurance. Over the years, there has been a trend of people owning fewer cars. The reduced ownership of cars impacts the need to provide more parking for developments.

This trend is most prevalent in urban areas where fewer people rely on and own a personal vehicle. In an urbanized setting, a ratio of one car per three apartment units is typical for the developer. If the apartment building is in close proximity to transit (within a one-to-two-block walking distance), then the ratio is 1.2 cars per unit. Residents will let go of their second vehicle if they have easy access to transit. In a suburban setting, the ratio is 1.1 to 1.2 cars per apartment unit depending on the unit mix.

Access to transit is a major factor in balancing the marketability and affordability concerns. Having access to transit, as stated, can encourage renters to let go of one of their vehicles. This means that the next apartment development can plan to provide less parking per unit while still being able to lease their apartments. Less parking means more affordable rents.

Decoupling parking fees from rent cost is also an important strategy for making developments affordable for tenants. The monthly cost is less if the tenant opts not to pay for a dedicated parking space. The trade-off is that those tenants are typically not able to park in the facilities. Unbundled parking allows developers to potentially construct less parking and places the decision on whether or not to pay for parking in the hands of renters, which makes the rent more affordable for renters and also encourages use of transit. Therefore, access to transit and multimodal transportation at or near the development site is necessary for success.
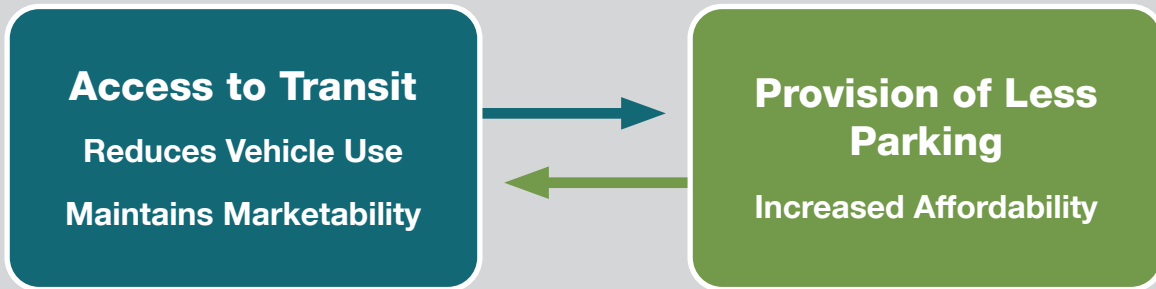
| Access to Transit | | Provision of Less Parking |
|---|---|---|
| **Reduces Vehicle Use** | → | |
| **Maintains Marketability** | ← | **Increased Affordability** |

An important takeaway from the conversation is that developers should be included in conversations regarding parking requirements and incentives. Since each community is different, there is no one simple solution for meeting developer needs and community needs. Open and frequent conversations to build strong relationships with the development community is key to successful growth that aligns with the community's plans and goals.

# 5. Partnership Parking Studies

## 5. Partnership Parking Studies

The Utah Parking Modernization Initiative includes two case studies - Ogden and South Salt Lake. Insights from these efforts can inform other cities looking to modernize their parking systems.

## Ogden Findings

Ogden City has an active Downtown with a mixture of residential uses, retail, hotels, government and private offices, and land slated for new development. The Downtown has access to a number of multimodal options, such as commuter rail, bus, bike, scooter, sidewalks for pedestrians. The major concerns, and reasons for the study, are to examine the actual need for parking for various land use typologies and recommend a comprehensive set of parking strategies that will allow the City to proactively manage their parking supply – helping them plan for growth appropriately, maintain the unique Downtown character, and have the tools necessary to adapt to Global, National, and Regional crises.

Summary of Findings: Despite the overall low occupancy in Downtown Ogden, there are pockets of high occupancy that can result in a perceived parking problem by visitors or employees who park in those facilities. The following findings were made for Ogden:

- Overall parking occupancy in the Downtown is underutilized, with an overall parking occupancy of 51%. However, there are a number of facilities that are at or over the effective capacity threshold, as shown in the map. This indicates that the parking system needs some balancing, but also that the system is able to absorb more demand from land use changes or new development.

- Parking management strategies can be implemented to encourage users to park in the public off-street garage and/or on adjacent blocks that have lower occupancies.

- High parking demands for both on-street and off-street parking are areas where parking regulations should be adjusted.
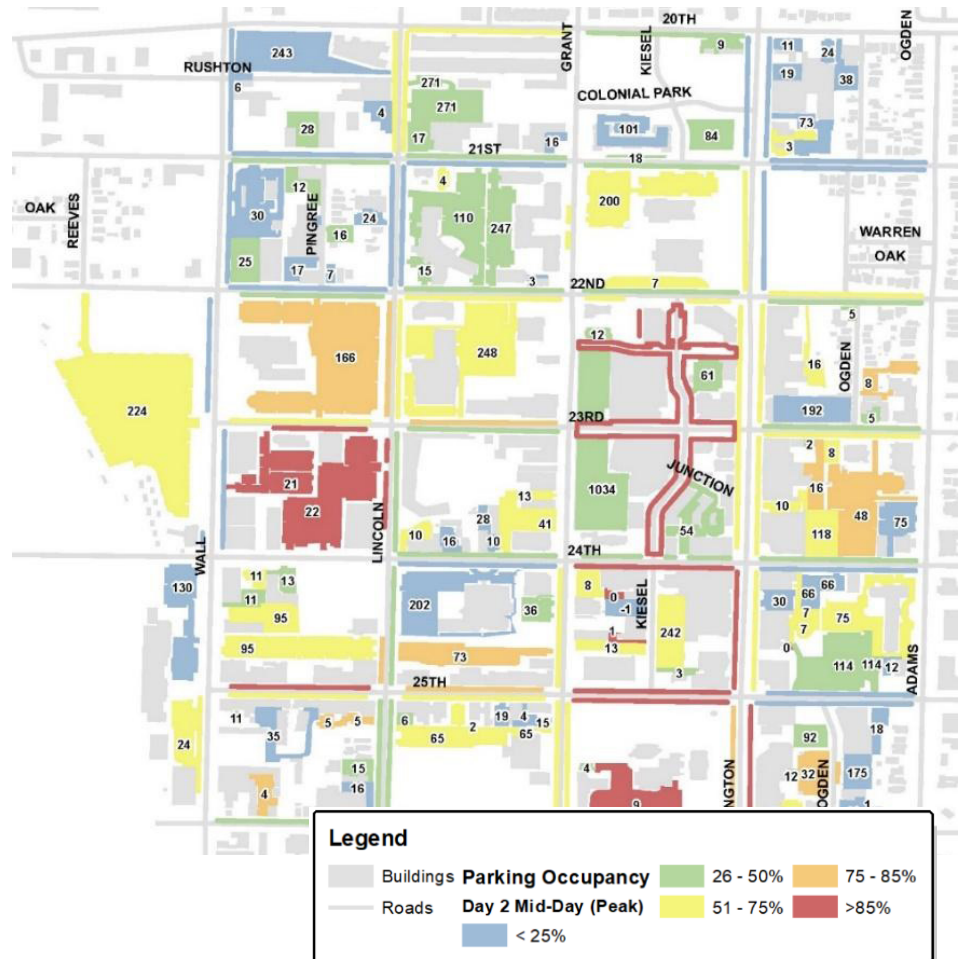
## Ogden – Number of Parked Vehicles vs. Available (Unoccupied) Spaces

| | Off-Street | On-Street | Available Spaces |
|---|---|---|---|
| Morning Day 1 | 5395 | 690 | 6863 |
| Afternoon Day 1 | 5731 | 868 | 6349 |
| Evening Day 1 | 3681 | 594 | 8673 |
| Morning Day 2 | 5486 | 767 | 6695 |
| Afternoon Day 2 | 5791 | 873 | 6284 |
| Evening Day 2 | 3473 | 629 | 8846 |

Legend:
- Off-Street
- On-Street
- Available Spaces
- Effective Capacity (85%)

## Ogden – Occupancy by Type and Time of Day

Overall Occupancy:
- Morning Day 1: 47%
- Afternoon Day 1: 51%
- Evening Day 1: 33%
- Morning Day 2: 48%
- Afternoon Day 2: 51%
- Evening Day 2: 32%

Legend:
- Public Off-Street
- On-Street
- Government Off-Street
- Private Off-Street
- Effective Capacity (85%)
- Overall Occupancy

## Ogden – Weekend Parking Occupancy by Land Use Typology



Legend: Affordable Housing, Market Rate Housing, Small Commercial, Big Box Retail
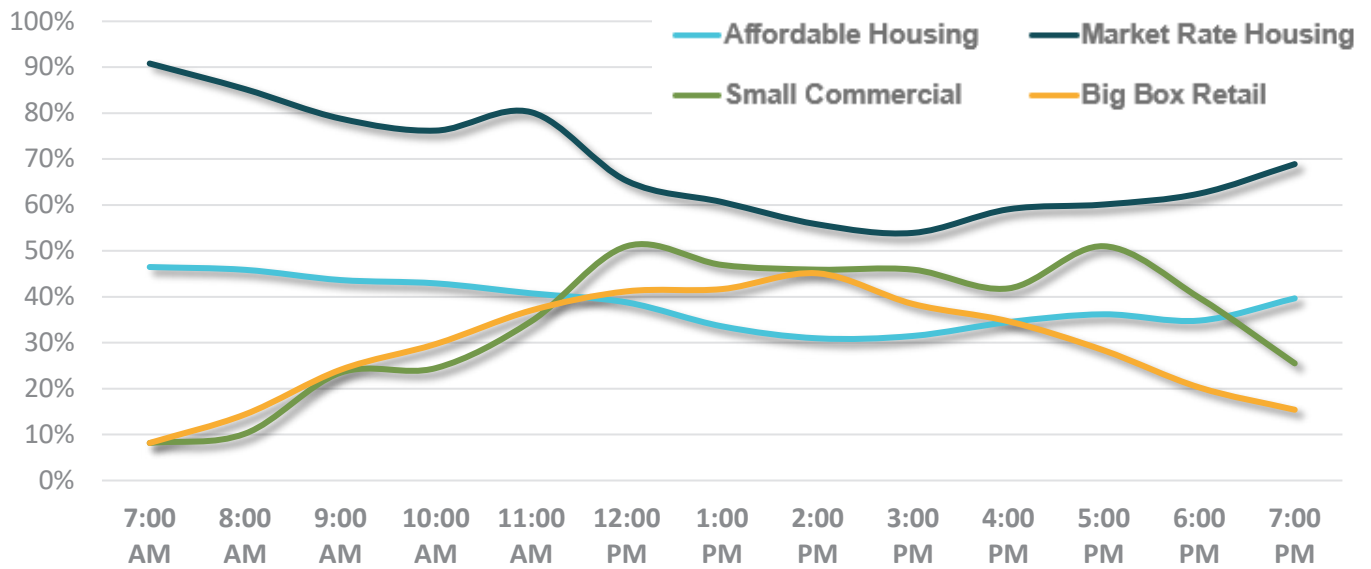
## Summary of Recommendations:

- Continue to use time limits to encourage turnover of on-street parking. On block faces with high occupancies and two-hour time limits, the time limits should be reduced to one-hour. If there is high demand and no time limits, time limits should be added.

- Parking requirements per the City Code are the same throughout the entire City. Special exceptions can be made for Downtown requirements on a case-by-case basis. It is recommended that a specific set of parking requirements should be established for the Downtown area that are reduced from the rest of the City requirements.

- Flexible shared parking requirements are a recommended strategy to allow developers to use existing underutilized parking. This could improve affordability of developments while optimizing the use of the existing parking supply. Flexibility should include a longer distance for shared parking – it is currently at 500-feet and should be increased to 1,000-1,300 feet.

- COVID-19 has exacerbated the issue of vacant parking lots in communities as people worked remotely. The Study recommends monitoring occupancies in underutilized lots or on-street spaces. It also recommends having a continuous and open dialogue with business owners and developers to re-purpose underutilized lots, either temporarily or permanently with new development.

- Develop an annual report template to record and report parking data and changes to the parking system on an annual basis

- Mid- to longer-term recommendations focus on using continued data to streamline curb management policies, improve enforcement practices, incorporation of technology, and leveraging existing or expanded multimodal options.

Further details of the study and recommendations can be found in **Appendix A: Ogden City Partnership Parking Study.**

## South Salt Lake Findings

South Salt Lake is in an interesting position of redevelopment in their Downtown area. Many of the existing warehouse type land uses are slated for redevelopment. Additionally, there are multiple TRAX light rail stations, S-Line streetcar stations, and high frequency bus service providing transit connections throughout the City and to the surrounding communities. Due to the abundance of frequent, high-quality transit, one of the popular new development land uses is Transit-Oriented Development (TOD) style housing. The Partnership Study for South Salt Lake compared the parking requirements for TOD style housing and various retail sizes and types to observed parking demands for these land uses. The purpose of the comparison was to determine whether the parking requirements should be adjusted to reflect modern trends in transportation.

### Summary of Findings: The following is a summary of findings based on the data collected and analyzed.

- Parking occupancy is generally low for all of the land uses observed, especially the retail land uses, where only 30% of the parking was being used at peak hour.
- The City's parking requirements for Transit-Oriented Development were found to provide adequate parking to support the residents.

## South Salt Lake – Weekday Parking Occupancy by Land Use Typology



**Legend:**
- TOD Apartments
- Transit Station
- Commercial On-Street
- Big Box Retail
- School
- Residential On-Street
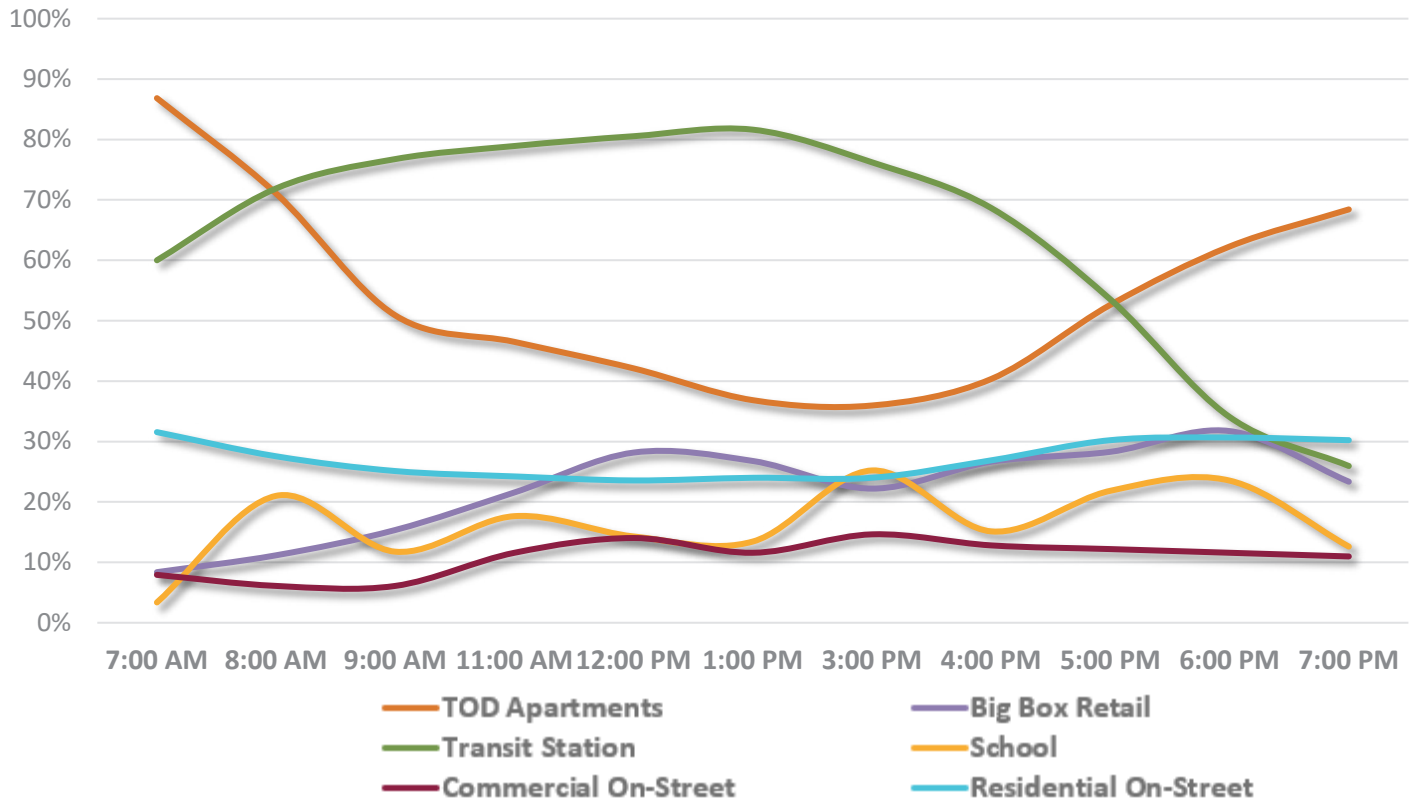
## South Salt Lake – Weekend Parking Occupancy by Land Use Typology



**Legend:**
- TOD Apartments
- Transit Station
- Commercial On-Street
- Big Box Retail
- School
- Residential On-Street
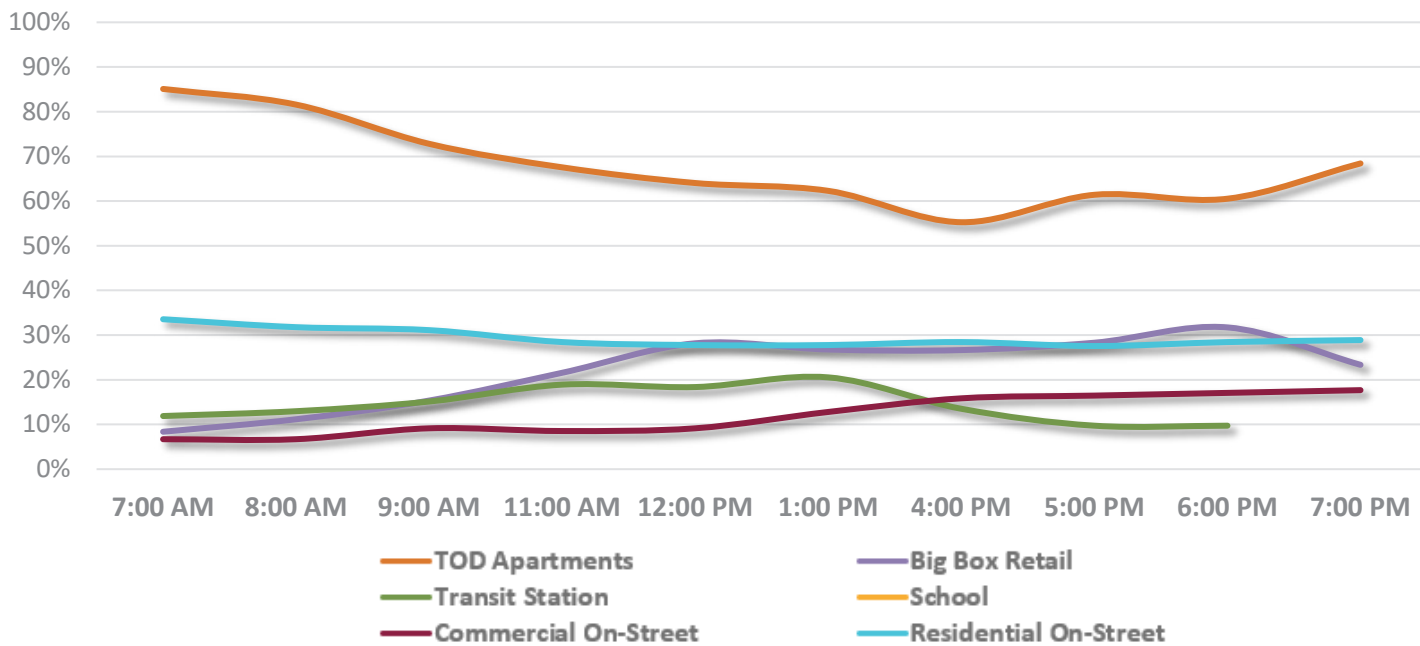
## Summary of Recommendations:

- The retail land uses observed in the Downtown area were also underutilized. Furthermore, the retail is in the Downtown area and adjacent to the transit stations, meaning there are opportunities to leverage the transit to justify adjusting the parking requirements, so parking is not oversupplied. It is recommended to reduce the parking requirements in the City's Code for retail land uses so that the land can be used for other alternatives. This could include more development or using that parking as a centralized, shared resource between many Downtown land uses – not just those on the site.

- As the Downtown area redevelops with retail and housing, the existing neighborhoods adjacent to the Downtown may experience parking conflicts as people spillover into the neighborhoods to park. It is recommended to set up the policies and practices for a parking permit program in preparing for this occurrence. The parking permit would exclude non-residents from parking in the neighborhoods at certain times of day.

- The distance for properties to share parking under the current Code is fairly restricted. The distance for shared parking is recommended to be increased to 1,000-1,300 feet to allow more flexibility on using existing parking. This will also allow new developments to make more flexible agreements with partners to satisfy their parking needs.

- A standardized shared parking agreement is also recommended to make a streamlined and consistent process. The agreement enables the City to have standard protocols for agreements, however, they would provide developers and property owners flexible accommodations to meet their needs. The City would be the broker for all agreements.

- A number of mid- to long-term recommendations specific to South Salt Lake were also included that focus on using continued data to streamline curb management policies, improve enforcement practices, incorporation of technology, and leveraging existing or expanded multimodal options.

Further details of the study and recommendations can be found in **Appendix B: South Salt Lake Partnership Parking Study.**
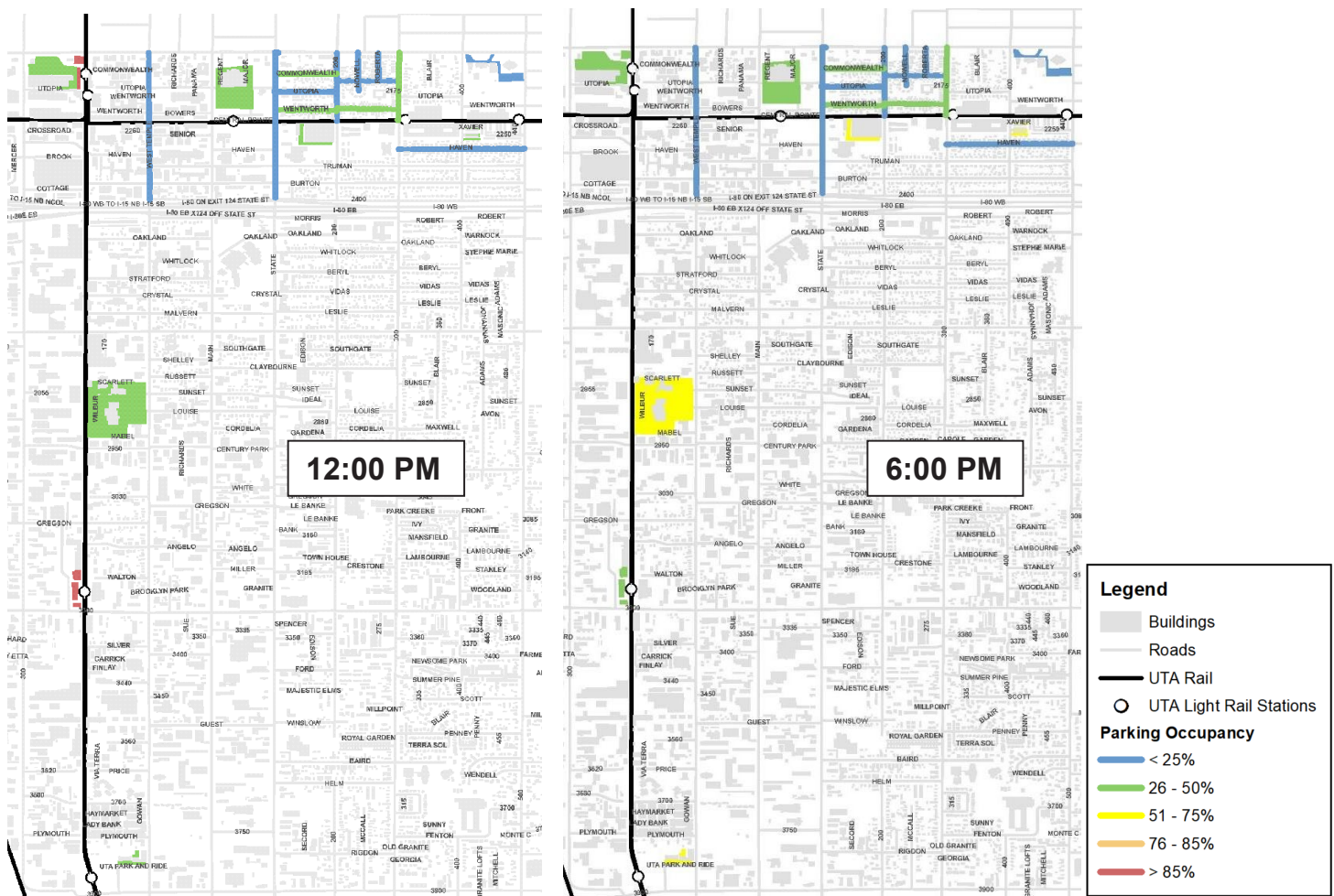
# 6. What Does It Mean to Modernize Parking?

# 6. What Does It Mean to Modernize Parking?

## History of Parking and Impacts on the Built Environment

Parking modernization is a concept for identifying parking strategies that reflect the world today and are flexible to grow with the future. It investigates and updates the antiquated regulations and policies that has guided parking in many communities across the Region and country since the 1950s. Since the car became a popular mode of transportation, city codes have attempted to identify and require the proper number of parking spaces necessary for development based on the type of land use and its size.

Parking policy has largely been reactive to changes in the community - meaning the parking codes change only after a problem has been identified. A proactive approach would involve identifying growth trends and goals within the community and adjusted to prepare for those changes and guide growth in a manner that supports larger community goals. Over time, complaints about a parking shortage (typically for a peak period despite a large supply otherwise), often led to parking policies and economic practices that shaped cities in ways that are now considered a detriment. These images show how parking has been handled historically across the country.

### Parking in the 1920s

- Traffic laws and regulations were starting to emerge
- Cars become common but streets still mixed with cars and pedestrians
- Historic downtown building rows added space for parking on-street.
- Parking lots were starting to form around land uses to accommodate cars

### Parking in the 1950s – 1980s

- Cars are favored over transit and many local transit services abandoned
- Parking codes adopted to ensure parking around land uses
- Piecemeal approach, by project
- Encouraged the pattern of isolated buildings ringed with parking familiar to us today

**Parking in the 1980s – 2000s**

- Surface lots are prominent feature in downtowns and suburbs
- Encourage vehicle travel and discourage walking
- Deteriorating community attractiveness and connectivity
- Reliance on ITE and ULI National Standards
- Awareness growing that surface parking lots often negatively impact net revenues

**Parking Today**

- Focus on connectivity and multimodal travel to reduce vehicle travel and parking
- Emphasis on building patterns that enhance walkability, character, and attractiveness
- Parking seen as tool to support economic growth and viability
- Growth and transportation intertwined
- Changing nature of retail
- High land costs and shift toward parking garages make parking an expense
- Willingness to share and manage parking cooperatively
- Redevelopment agencies and cities negotiate parking requirements to suit both project and neighborhood goals
- Using parking studies and monitoring to balance supply and demand



*South Lake City Project. Source: The Salt Lake Tribune, December 2019*

# New Utah Parking Dynamics

Communities across Utah are experiencing an evolution of city design. Commutes, shopping patterns and personal transportation habits are changing. Parking needs to evolve, too. Some commonly faced challenges include:

- An oversupply of parking for many land uses. This is particularly concerning in downtown areas or areas with mixed uses or higher density, such as areas near transit stations. Parking codes tend to cater to suburban style development patterns. Requiring parking for every individual land use in close proximity does not adequately reflect how mixed-use, higher density areas operate.

- Concern for downtown/city character, economic success, and diversity where parking may act as a barrier.

- Little to no management and control of existing parking assets, both public and private, creating an imbalance between supply and demand.

- Concern for increasing costs feasibility of new projects, due in part to the high cost of providing parking and its impact on affordability.

- Lingering resistance to paying for parking. However, this is giving way to paid parking in highly desirable areas.

- Reliance on national standards or standards from other communities that don't match the unique character, growth goals for the community.

To modernize parking is to take a fresh assessment of parking issues and solutions while considering the community's various contexts and overall community goals.

The following graphic illustrates various goals for a parking system. These are not goals traditionally thought of when thinking of parking. However, parking is now recognized as a part of the larger fabric of the community, often with a substantial influence on the community's economy, people, environment, and community character.

### Overarching Parking Program Goals

Support Existing Businesses and Residents

Create Attractive Places

Promote Equity

Promote Alternative Transportation

Promote Economic Growth

Enhance Safety

Promote Sustainability

There are several elements about the community that can be studied to get an accurate depiction of the parking system as well as the community characteristics that impact the parking system. The graphic below demonstrates many of the community-specific data that could be collected, analyzed, and/or reviewed as part of the study process. The depth to which these are all analyzed can vary depending on the goals, time, and money available to study them. However, the main takeaway is that these are all community-specific attributes, not data taken and applied from another community or from national standards.

**A successful parking system should…**

1. Support connectivity to transportation, land use, and economic development;

2. Provide access to businesses and destinations, linking parking to the economic enhancement of the community;

3. Serve as a transition point where alternative modes of transportation can cross paths and connect; and

4. Play a role in sustainability, measured by reducing traffic, congestion, and, therefore, greenhouse gas emissions.

**Community-Specific Attributes for Parking Modernization**
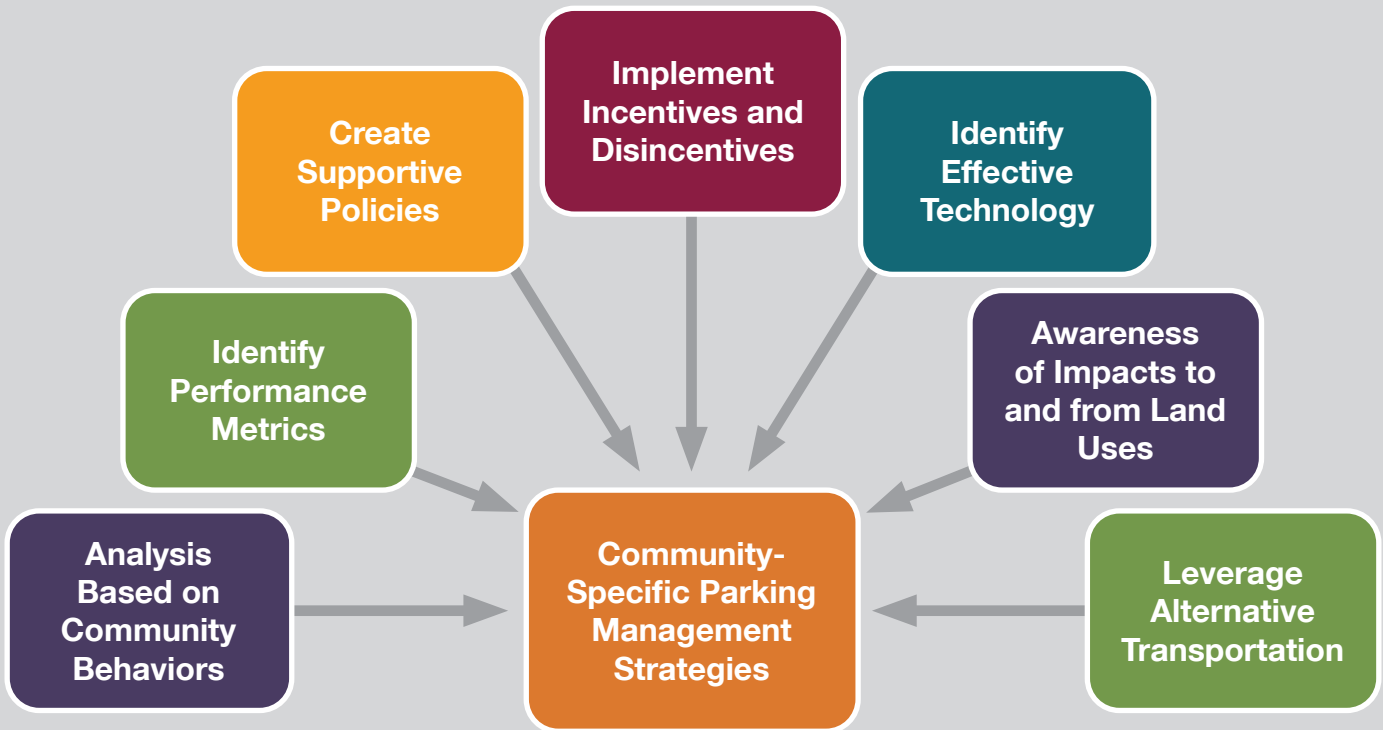
# 7. Parking Study Performance Metrics

# 7. Parking Study Performance Metrics

Parking occupancy is a key performance measure used to evaluate the effectiveness of the parking requirements and observed demand. The industry-accepted thresholds for parking occupancy are shown below. The ideal goal is to have a parking system, site, or urban center where 70% to 85% of the available parking spaces are occupied during the peak conditions. If too many spaces are occupied, then the remaining spaces are too hard to find. If too few spaces are occupied, then the land is not being used to its greatest potential and the parking can absorb more demand.

| **Under 70% Occupancy** Under Capacity | **70-85% Occupancy** Optimum Capacity | **Over 85% Occupancy** Effective Capacity | **Over 90-95% Occupancy** Residential Effective Capacity |
|---|---|---|---|

An exception to the 85% effective capacity threshold is for residential land uses. Residents are extremely familiar with their parking options and will habitually park in the same location year after year. Therefore, the parking occupancy threshold can be increased to 90%, or even 95% in some cases, for these types of land uses.

The following are broad examples of parking management strategies that can be introduced as parking occupancies increase. The intention is to not immediately jump to more intense parking management strategies. This can cause pushback and concern from businesses and residents. Rather, strategies should be implemented gradually, giving time to analyze trends and make minor adjustments that improve the parking program that are based on data and informed by the community's needs.

| **No/Minimal Regulations** | • No concerns about the amount of parking<br>• No concern from residents and businesses |
|---|---|
| **Time Restrictions** | • Promote efficient use of parking through turnover, encouraging long-term parkers to look for other spaces or arrival options<br>• Managed through signage and enforcement |
| **Permit Parking Protections** | • Introduce permit parking system that restricts who can park in specific lots or streets (e.g. residential neighborhoods)<br>• Helps manage the overflow of parking from adjacent commercial areas |
| **Transportation Demand Management** | • Improvements to cycling, walking, transit, micro-mobility amenities over parking improvements |
| **Introduce Paid Parking** | • After resources are exhausted and parking demand in area grows past the acceptable threshold (85%), paid parking should be introduced |
| **Introduce Additional Parking** | • If parking demands continue to exceed the acceptable threshold (85%), more parking should be provided |

## Data Needed to Assess Performance Metrics

Data is a critical part of tracking and monitoring all aspects of the parking program. Having data, especially historical data, helps a city and the public understand what, why, and how decisions should be made for improving the system. The following is a list of data that should be collected on a regular basis. The data should be collected annually and included in the parking program's Annual Report, which is strategy #16 in the Regional Implications section of this report.

### Parking Inventory
Provides the baseline for analysis and allows the City to track changes to the parking system over time and the impacts of those changes (e.g., removal/addition of parking, regulatory changes).

### Parking Occupancy
Indicates how well the system is being used and when parking strategies need to be implemented or adjusted. Time-limit policies can be adjusted to either encourage or discourage use.

### Parking Duration
Indicates how long people are staying in given locations. Timing, and eventually pricing, policies can be adjusted based on the surrounding uses and turnover rate. Collect only in high-demand areas.

### Parking Citation Volume and Type
Indicates how many citations are issued and whether violations are occurring in isolated areas over a given period of time and whether citations are increasing. Further analysis could figure out why that is and whether an adjustment to parking strategies and policies are needed.

### Program Revenue and Expenditures
Changes in revenue, when viewed granularly, can define how parking demands are shifting, and the success of policy changes. Revenue should include citations and permit revenues.

### Customer Satisfaction
Conducting customer satisfaction surveys periodically can define how patrons are reacting to changes in the program. The City should consider satisfaction levels of residents, businesses, employees, and customers at a minimum.

### Vehicle Congestion
Reduction in vehicle miles traveled and localized congestion is an indicator that parking management strategies are effective at redistributing demand and overall access to the community.

### Mode Split and Transit Ridership
Mode split in the community is a key characteristic in defining shifting behavioral and access patterns. Reductions in drive-alone rates can be a clear indicator that parking policies are working.

## Data Collection Plan

Data should be collected in a consistent manner each year to ensure that the metrics are comparable. Therefore, a city should develop a data collection plan that specifies the staff necessary to collect each data point, equipment needed (cameras, GPS, pen/paper, water, etc.), the timeframe necessary to complete the task, specific instructions on how to collect the data, analysis standards, and reporting standards. When first initiating, staff should also be trained before entering the field to collect data. This ensures consistency in the collection methodology.

## How to Use the Data

The following provides further details on how to use the data that is collected.

### Parking Inventory

Create an inventory database that can be updated annually. The database should include:

- Type of space (on-street, lot, garage)
- Ownership (pubic or private)
- Regulations (time limits, enforcement hours)
- Location
- Number of spaces (total and by type if it's a shared facility)
- Other information (such as, is the facility shared? Is the parking for transit riders only?)

The database should also track what spaces were lost or changed in some way (no longer shared but total spaces in the same, lot removed, block experiencing construction so there is no parking that year, etc.). The inventory is a baseline metric that helps provide context for the other data metrics.

### Parking Occupancy

Regardless of what is being evaluated, whether it's time limits, permit system, parking requirements, curb management, etc., parking occupancy is the key metric used to determine when the next level of change is necessary. Ogden should consider making parking management adjustments once a set of adjoining parking spaces (e.g., a continuous block face or more) or a parking lot or garage is consistently experiencing the following:

- Parking occupancies reach or exceed 85% or more for three or more hours over at least two weekdays (measured in separate weeks)
- Parking occupancies reach or exceed 70% five or more hours over at least two weekdays (measured in separate weeks)

Once those thresholds are reached, the City should consider implementing the next phase in a recommended strategy.

### Parking Duration

Parking duration should be collected in high-demand areas only so that time limit regulations can be adjusted. The intention is to encourage turnover of spaces, creating more availability. Duration data does not need to be collected each hour of the day, like occupancy data, but rather only the hours surrounding and including the peak times of day.

### Parking Citations

Enforcement officers can collect and share this information on a regular basis in an interval that is agreed upon with the City planning staff (monthly, quarterly, annually). While there are no specific metrics, this data will help determine hotspot locations for certain types of violation types. After a couple of years of consistently collected data, the City can set thresholds for making improvements to the enforcement practices.

## Parking Revenue and Expenditures

Knowing how much money is spent on parking helps to inform conversations about how impacts to parking will also impact other areas of City planning. For instance, as various departments review budgets, it is a good opportunity to have conversations about how parking has impacted transit or development and so on. It is also useful for when there are conversations about how to price parking, such as permits or parking at transit stations, if and when the parking program matures to that point. A parking revenue report also helps establish budgets to help support other interventions, such as signage, collections, or technology.

## Customer Satisfaction

Survey the community on an annual basis to gauge feedback from customers, business owners, property owners, developers, residents, and other representatives. The survey should ask similar questions year over year to display historic trends.

## Vehicle Congestion

Vehicle congestion data is available from WFRC and can be cross-analyzed with other data that the City collects. The data can be added to the reports to help draw conclusions about how the implementation of the recommendations has impacted the number of vehicles on the road.

## Mode Split and Transit Ridership

Data collected by WFRC and UTA can be used to build this dataset to track the percentage of those who travel by single-occupancy vehicle, bike, pedestrian, and transit. In this category, the City could also track the usage of bike-share programs and other mobility programs. UTA can provide detailed ridership data for each station within Ogden as well.

# 8. Parking Management Strategies

# 8. Parking Management Strategies

Based on the findings of the Partnership Studies, Peer City Roundtable, developer discussion, and best practices literature review, a number of strategies were identified that would guide the communities in the Region to modernize their approach to parking management.

The literature review was conducted to identify industry best management practices with regard to parking management and policy. Early in the Initiative process, the agency-led Steering Committee identified a number of topics that were of interest to their agency, the Region, and Utah. The team then conducted research to identify the latest benefits, challenges, and impacts for those strategies. The Peer City discussion provided further depth to these strategies by identifying lessons learned and/or practical implementation ideas.

There are a number of industry best practices for improved management of parking resources and to decrease parking demand, however, how they are applied and why they are applied vary for each community. Through the process, three recommendation buckets were identified to categorize various parking strategies.

- Practices and Policies – This group of strategies focus on programmatic and policy changes to support the parking management program. Other strategies can be implemented, but the policies and procedures of the community staff are what keep the program moving forward and successful.

- Manage Parking Assets – This group of strategies focus on the parking resources within the community and how to get the most benefit from these resources. If the use of parking resources is optimized, then more spaces can be made available in high-demand locations. As a result, there is less need to construct expensive new parking supply. However, planning for new supply and managing it properly is important to maximize its use. This bucket also includes strategies to help plan for new parking supply with intention and a transparent process.

- Manage Parking Demand – This group of strategies focus on people and enabling or encouraging them to choose different travel behaviors that reduce the demand on parking supply. This includes encouraging multimodal transportation, as well as using management strategies to redistribute where people park. Allocation of parking, which is the focus of Managing Parking Assets, dictates where people can park by the City or a private entity. The strategies for Reducing Parking Demand put the decision on where to park on the user by using incentives and disincentives to move people into low-demand parking areas.



| Practices and Policies | Manage Parking Assets | Manage Parking Demand |

For each strategy, there is a description of the strategy and why it is a useful tool for improving parking and mobility, benefits, and challenges to recognize, and best practices for implementation to consider. The strategies are not prioritized since prioritization is contingent upon the needs of the individual communities. However, these strategies offer guidance for many communities as they begin to analyze their parking and mobility conditions.

## Strategies for Practices and Policies

### Strategy #1 – Right-Size Parking Requirements

Parking requirements define the amount of on-site parking that various developments must provide. Traditionally, these requirements have been applied to ensure that specific land uses have adequate parking supply to meet demand. Although common in many communities, the requirement for each land use to provide a minimum amount of parking could become detrimental to the economic growth and preservation of pedestrian-friendly character in the Village and beach area. The intent of establishing reduced parking requirements is to better align parking requirements with actual parking needs in the community and to transition to a system that utilizes shared and leased parking supply. Shared and leased parking in combination with reduced parking requirements for new development would optimize the use of existing parking while still allowing developers new developments to provide necessary parking on-site. A reduced number of spaces required encourages mixed-use, pedestrian-scaled development, and can stimulate economic growth in a community.
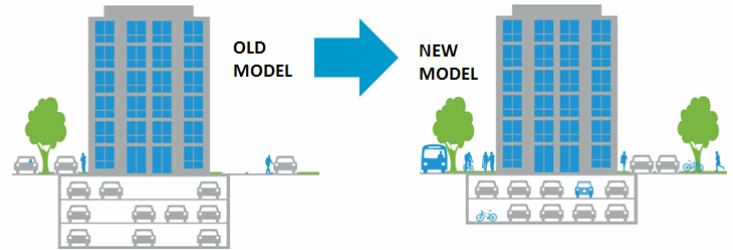


**Strategy Best Practices**

- Involve developers in conversations.
- Consider:
  - Development type and size
  - Population and development density
  - Availability of transportation choices
  - Surrounding land use mix

**Benefits:**

- Creates a balanced parking system that can accommodate the needs and vision of the City.
- Encourages infill development as well as multimodal transportation.
- Adequate parking requirements reduces the cost of development, which also increases affordability for tenants.

**Challenges:**

- Monitor annually but adjust 5-10 years depending on what the data dictates and the group discussions with developers. This time also allows the City to observe true trends in occupancies for land uses.

**Successful Implementation**
Beaverton, OR

Beaverton's developer community has enthusiastically embraced parking because they see that they can build more densely if less parking is required. Structured parking in Beaverton is expensive because their water table is only four feet down and the price is astronomical for underground parking. People want to build in Beaverton, proven by the response they receive for projects, and they seem to have effective development standards in place that people are willing to build to.
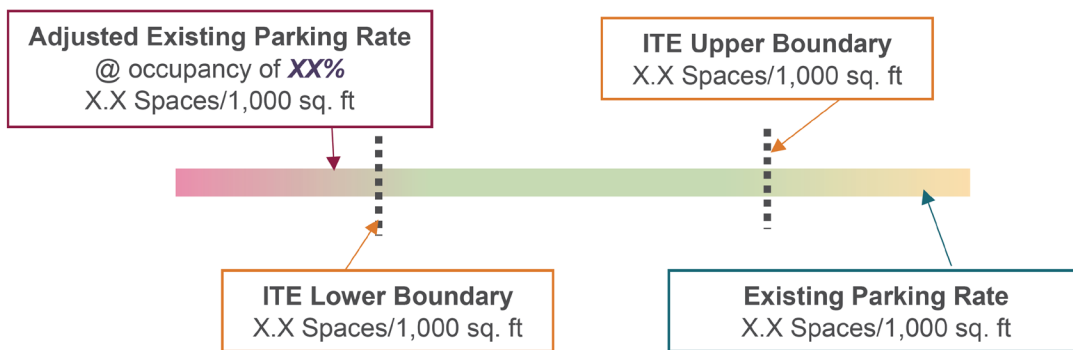
## How to Use Occupancy Data to Monitor Your System and Right-Size Requirements

Evaluating the parking requirements with the use of local parking occupancy and inventory data is important to make sure those requirements are sufficiently able to support new development without overparking the system. As previously mentioned, the parking requirements in the code shouldn't be updated annually because it will create confusion for developers and lenders and City/town staff. However, occupancy and inventory should be evaluated annually in comparison to land use parking requirements to gauge and track how changes to parking and transportation are impacting the requirements. The historic data can be used to update the code's parking requirements if necessary. The data can also be used to determine what incentives provided to developers are most used and effective.

The following graphics were developed to demonstrate how to compare existing code requirements, national standards, and an adjusted rate based on occupancy data collected in the community. National standards are typically from the Institute of Transportation Engineers (ITE) Parking Generation Manual (latest version is the 5th Edition). These are for illustrative purposes that may help communities compare different data points and help inform discussions and decisions.

| Symbol Key | | Impacts to Urban Form |
|---|---|---|
| **Balanced** |  | The code is adequately providing parking. The parking system is balanced and allows for opportunity for continued growth. |
| **Overparked** |  | The code requires too much parking and is resulting in parking that is not used. The urban from is vacant and properties are disconnected. The land use is not being used to its greatest economic potential. |
| **Underparked** |  | The code does not require enough parking and results in spillover parking. New investments and development can be deterred because the parking availability is constrained. |



**Adjusted Existing Parking Rate** @ occupancy of **XX%** X.X Spaces/1,000 sq. ft

**ITE Upper Boundary** X.X Spaces/1,000 sq. ft

**ITE Lower Boundary** X.X Spaces/1,000 sq. ft

**Existing Parking Rate** X.X Spaces/1,000 sq. ft

As communities review their parking, they can determine whether the requirements for a particular land use are balanced, overparking, or underparking that land use. If the occupancies were below 70%, then it would fall in the yellow portion of the bar. If it was above effective capacity, then it would fall on the red side. If it was within the optimal range of 70%-85%, then it will be in the green. The ITE boundaries can be used to identify the national standards in comparison to the existing requirements and how they compare. Based on the observed occupancies, a community can have discussions with developers and other departments to discuss appropriate changes or other development incentives to provide the right level of parking for that land use in the area it is being developed.

## Strategy #2 – Plan for Mobility Hubs

Multimodal transportation use has been gradually increasing over the years, especially in urban or mixed-use areas, as people find it easier to move around using other means of transportation besides their cars. Transit centers offer a natural connection point that brings together many different forms of transportation in one location (bikeshare, ride hailing, E-scooters, vehicle charging, wayfinding, etc.). These are called mobility hubs.

The Victoria Transport Policy Institute (VTPI) notes that mobility hubs include walking, cycling, taxi, ride hailing, ridesharing, carsharing, bikesharing, E-scooters, local delivery services, public transit, vehicle parking, bike parking, and pedestrian connectivity. Mobility hubs can include other amenities such as convenience stores or other land uses that support commuters and travelers. They can also be an opportunity to initiate or expand place-making in a community, with use of public art, signage, parklets, landscaping, fountains, lighting, and community and transportation information.

Mobility hubs may be thought of as a "big City" concept, it is a flexible concept that can be successfully adapted in many locations, from small towns, downtown areas, near campuses, resorts, etc. At its core, it is a place where many forms of transportation are centralized for easy connections between modes.

**Benefits:**

- Promotes multimodal transportation and transit ridership.
- Creates a sense of place within the community.
- Supports transit-oriented development and downtowns.
- Can be built on and expanded overtime to grow with the community.

**Challenges:**

- Requires intentional planning and investment – locate multimodal amenities.
- Coordinate with transit providers to ensure the hub aligns with transit plans and investments.

**Strategy Best Practices**

- Build upon existing strong transit stops.
- Leverage and encourage transit-oriented development.
- Incorporate electrification to support eVehicles.
- Enhance safety features, such as good lighting, visibility, cleanliness
- Incorporate placemaking elements.
- Add transportation options and amenities.
- Make improvements so users experience seamless transfers between travel options.
- Provide hub information on the community's website and travel information.

**Successful Implementation**
San Diego, CA

The Mid-Coast Mobility Hub Implementation Strategy evaluated ways to enhance access to 10, under construction, light-rail stations in San Diego with the ultimate goal of increasing transit ridership. The Strategy utilized a data-driven existing conditions analysis with robust outreach to local communities to develop a program of context-specific mobility hub improvements ranging from interactive wayfinding kiosks and dynamic message signage to dedicated pick-up/drop-off zones and secure group bike parking. Using the findings of the study, the designs of several stations were modified to include low-cost improvements and prepare for future enhancements.

## Strategy #3 – Enforcement

Enforcing existing and proposed parking regulations is critical to the success of the program. Parking enforcement should be conducted regularly and consistently and with a focus on customer service. For instance, if an area has two-hour time limits, the route for the enforcement personnel needs to be completed in two hours. Active enforcement encourages compliance with the parking regulations through education and citations, thus maximizing the use of the existing parking resources.

**Options for enforcement include:**

- Self-Operation – The City/town operates the parking program itself. Enforcement can be conducted by the police department or City/town staff.
- Management Contract – The City/town contracts a private parking management firm to handle day-to-day operations and maintenance through a management contract.
- Concession Agreement – The City/town contracts a parking management firm to assume full responsibility for all aspects of the operation, including expenses, and the parking management firm pays the City/town a guaranteed amount and/or a percentage of gross revenues (or a combination).

**Benefits:**

- Efficient enforcement practices establish a culture of compliance with parking regulations.
- Enforcement practices can produce key indicators for the parking system.

**Challenges:**

- Enforcement must be consistent
- Producing enforcement practices requires adequate signage and notices that allow users to know what is required to park properly.

**Strategy Best Practices**

- Review fee structures for citations. Consider warnings for first time offenders, and a graduated fee structure for repeat offenders. Same theory of graduated fee structure for payment of citations – becomes more expensive the longer the citation is unpaid.
- Establish performance measurement tools and standards for communicating data collected.
- Frequency and location of violations by type
- Capture rate (20% rate wanted)
- Deploy enforcement officers as ambassadors. Parking enforcement personnel should be trained to serve as community ambassadors, serving the dual role of enforcing parking time limit regulations and providing friendly customer service.
- Sporadic Enforcement – To minimize the presence of enforcement, enforcement can be conducted on sporadic schedules. The same pattern of enforcement should not be repeated each day. Rather, a few days a week of intensive, targeted enforcement should occur in the study area. The sporadic nature of enforcement keeps the public from learning the enforcement pattern. The public is then more likely to comply with parking regulations and use the parking spaces as intended.

**Successful Implementation**
Salt Lake City, UT

Enforcement has recently shifted from revenue-focused to customer friendly focused. The intention behind the shift is to improve the customer experience and therefore satisfaction with the parking system. It is an intentional effort to improve the image of parking staff and parking in general. Improved image can later lead to a more collaborative decision-making process that reflects the customer's needs.

## Strategy #4 – Transit Station Parking Planning

Managing transit station parking supports and encourages transit ridership by preserving adequate parking spaces for transit users. Management of transit parking should only occur once the parking occupancy has reached effective capacity of 85% or higher for at least two weekdays on differing weeks. Management strategies can vary from station to station depending on the goals and characteristics of that station.

For some transit stations, managing parking lots can also be seen as a deterrent to the access of stations - for people accessing stations without a car. This is because transit riders are already paying a transit pass. To add the cost of a parking permit may inadvertently push people to drive their personal vehicle rather than take transit. This is not the intent of managing parking at a transit station. The goal is to make parking more available so that riders are not frustrated with the parking situation and still have transit as a feasible option. Implementing any management strategies should only be at stations where the associated parking is above effective capacity and riders and other customers are disgruntled with the lack of available parking.

*Management strategies can vary from station to station depending on the goals and characteristics of that station. This is a long-term strategy and is requires more detailed analyses than this study performed to determine the need and appropriate level of parking management.*

### Benefits:

- This strategy will reduce per capita vehicle travel.
- Identifying these management practices will encourage transit and multimodal travel.
- Management supports affordable housing and diverse land use mix.

### Challenges:

- Spillover parking into surrounding neighborhoods may occur and lead to regulations in those facilities.
- Work with UTA to set prices associated with permits or paid parking. Any costs for transit users must be balanced with the cost of a transit pass. If parking and transit are more expensive than driving, this could become a deterrent to using transit.

### Strategy Best Practices

- Use a permit system that restricts non-transit riders from parking in the transit parking at peak times (early morning)
- Monitor and assess the parking occupancy, parking duration, and ridership at the transit station(s) annually.
- Conduct a survey of people accessing transit via the station to determine how to best meet their needs.
- Pedestrian and bicycle amenities and connectivity are critical for attracting non-vehicle use at transit stations. Multimodal access can help maintain ridership for transit while reducing parking demand.
- 85%-90% is the effective capacity threshold (the range depends on the comfort level of the community the transit station is in). Management strategies should be implemented once this threshold is reached.
- Build a strong relationship with transit providers. May be beneficial to set up a committee to exchange data, discuss mutual issues, and plan future improvements and investment strategies.

### Successful Implementation
Sound Transit, Seattle, WA

At the busiest park-and-ride locations, Sound Transit offers permits for carpool and single occupancy vehicles for weekday mornings. Half of the spaces in the permitted lots are reserved for permit holders only from 4-8 a.m. The other half of the parking spaces, and the permitted spaces outside of those hours, are open to the public on a first-come, first-serve basis. 90% vehicle occupancy is the threshold used to determine which lots will be permitted. Eligibility for a permit requires a transit pass and use of the pass at least 12 days per month.

## Strategy #5 – Curb Lane Management

Since the arrival of cars onto the landscape, most US cities have used the curbs of their urban areas primarily for the short-term storage of privately-owned vehicles. However, with the growth of new modes of transportation - including micromobility options, TNCs, and carshare services, balancing existing uses – such as parking, loading, and transit, and a growing awareness of well-designed streetscapes, most cities are increasingly rethinking how best to utilize this valuable real estate.

Two other recent trends are also helping to fuel this revolution. First, a growing interest in outdoor seating has led many cities to remove parking spaces to allow for additional dining space in small parklets. Second, the ongoing rise in internet shopping has in turn fueled significant growth in parcel delivery companies, such as FedEx and UPS, not to mention the United States Postal Service and Amazon.

Furthermore, many of these users desire free and unimpeded access to curb space, and like other public resources, cities must operate and manage the curb effectively to provide access for a variety of users, while optimizing overall public benefit.

A curb lane management strategy can arm communities with a way to be flexible and respond to real-time issues such as the COVID-19 pandemic. Many cities and parking operators shifted short-term spaces or other inventory into pick-up only sites to help with physical distancing and to support convenient pick-ups.

**Benefits:**

- The program prioritizes and manages often competing curb uses by location, day of week, type of user, and time of day.
- The program articulates objectives for different curb uses and different parts of the City.

**Challenges:**

- Involves significant and transparent coordination with business owners, public, and other stakeholders.

### Strategy Best Practices

- Compile and review existing curb management policies and practices.
- Collect curb use inventory data (and occupancy if feasible, though not necessary).
- Prioritize curb lane uses. See an example from Seattle Department of Transportation for how various curb uses can be prioritized based on the type of street.
- Use pilot studies to test curb improvements
- Solicit feedback from the public and business owners.

| | Residential | Commercial & Mixed Use | Industrial |
|---|---|---|---|
| 1 | Support for Modal Plan Priorities | Support for Modal Plan Priorities | Support for Modal Plan Priorities |
| 2 | Access for People | Access for Commerce | Access for Commerce |
| 3 | Access for Commerce | Access for People | Access for People |
| 4 | Greening | Activation | Storage |
| 5 | Storage | Greening | Activation |
| 6 | Activation | Storage | Greening |

*Source: http://www.seattle.gov/transportation/projects-and-programs/programs/parking-program/parking-regulations/flex-zone/curb-use-priorities-in-seattle*

### Successful Implementation
Gresham, OR

Gresham is working to prioritize curb lane management and incorporate those policies into broader parking and land use policies. This is a comprehensive, paradigm shift from how parking is traditionally thought of in the city. Parking is traditionally looked at in a supply/demand capacity. Comprehensive curb lane policies will allow the city to proactively plan for parking and accommodate new development.

## Strategy #6 – Data-Based Decision Making

One of the central tenets of the modernized approach to parking and mobility management is the use of community parking system data to support better policy and practice decisions that are consistent with the intended vision and outcomes of the program. The data can be used to have informed communication with developers, business owners, and the public, as well as internally with various departments or across agencies. Data enables informed, proactive management, rather than reactive to problems that are already present.

Data should be collected in a consistent manner each year. This means that data should cover the same area(s) each year. If there is an expansion, then that expanded area should also be included along with the original area(s). Similarly, the time of day should be the same, unless there is a compelling reason to change them. For instance, if activity picks up for evening activities, or a new event comes to the community, or there have been increasing complaints of spillover parking at certain times, then the collection times can and should be adjusted.

As the data is collected, the community will build a database of historic information that can identify trends and help the community make correlations between changes in the community, growth, and transportation impacts. The metrics discussed previously should be used to help communities assess their parking and mobility system.

**Benefits:**

- Data-based decision making improves the ability to track the impact of changes made to the system.
- This strategy can be used to improve communication and marketing for the parking system.
- This type of decision making will establish trusted baseline metrics for making year-over year transportation and mobility enhancements.

**Challenges:**

- This strategy requires intentional consideration of data collection process to create consistent sets of data and meaningful analysis.

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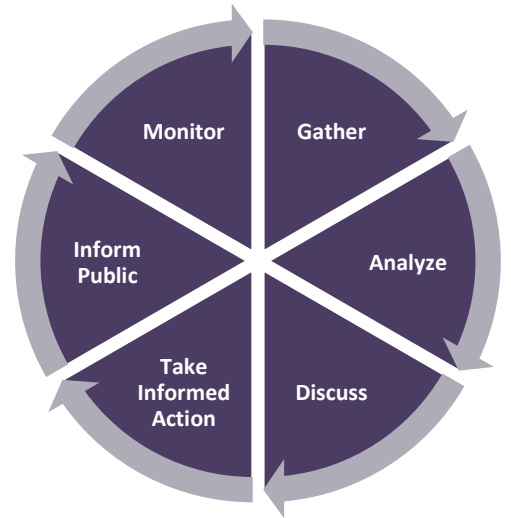
**Strategy Best Practices**

- Establish protocols, expectations, and methodology for annual data collection and analysis to define impacts of performance.
- Conduct a comprehensive parking occupancy data collection effort to establish a baseline for cataloguing parking inventory and occupancies. Inventory should include the type of facility (on-street, lot, garage), ownership (public or private), number of spaces for each facility or block, and any regulations (time limits).
- Create analysis and reporting templates that can be used annually or as frequently as desired. The template and analysis should be folded into the annual report (see next strategy).
- Define intervals for adjusting the system (annually, semi-annually, quarterly, etc.). Combine with marketing and education campaign when changes are made.

## Strategy #7 – Annual Reporting

Communication of information is a part of nearly all previously mentioned strategies. Whether it's the communication of data and analysis, communication of growth and development changes in the community, communication of regulatory or policy changes. The public, business owners, developers, and agencies should systematically and consistently share information. An annual report is a way for communities to communicate all of these facets for the parking system. Many strategies need to be monitored annually to determine their impacts and whether or not adjustments need to be made. An annual report is a great way to consistently monitor the data year over year.

**Benefits:**

- Developing an annual report will allow for consistent analysis of the parking system.

- Provides a means of tracking metrics so that historical databases are established

- Allows planners to draw conclusions about what community-wide changes have impacted the parking system. Changes such as transit or transportation additions or modifications, new development, and economic growth

**Challenges:**



*Source: Seattle Department of Transportation, Annual Report 2017 On-Street Paid Parking Occupancy, Performance-Based Parking Pricing Program, October 2017*

- Initial development of an annual report requires significant coordination amongst parking management staff to determine metrics and elements to report on each year.

- Requires data to be collected annually in order to report on it each year in the annual report

- Must devote a certain amount of staff time each year to prepare the annual report

**Successful Implementation**
Seattle, WA

The Seattle Department of Transportation releases an annual report each year for their on-street paid parking system. The report defines common terms, explains the need for the analysis and how the analyses are performed, and the policy that dictates the need for the analyses. The report then examines the parking occupancy and current pricing for the numerous neighborhoods in the city. Each city is evaluated in the same manner. As new neighborhoods are added or boundaries change, the annual report will incorporate those changes but will keep with the overall reporting theme and mechanisms. The data in the annual report is used to communicate and explain parking pricing changes for each neighborhood, using data to inform the decisions.

## Strategies for Managing Parking Assets

### Strategy #8 - Flexible Shared Parking

Many parking codes across the country allow for shared parking, however, the opportunities for property owners to share parking is limited. Often times there has to be a parking study to prove the partnering land uses have opposing peak demands. However, this restricts land uses with an excess of parking supply from sharing their resources. Additionally, many parking codes state that shared parking can only occur between two properties that are directly adjacent to the parking resource to be shared or that the parking resource has to be within 300-500-foot distance from the land uses wishing to share. These types of codes are restrictive in downtown or mixed-use areas because people will likely walk more than those distances in these areas. Therefore, the walking distance can be expanded so the use of existing parking resources is optimized.

Not all land uses reach their peak parking needs at the same time of day or on the same day of any given week. Restaurants tend to be busiest during lunch and dinner hours, while offices are typically busiest in the middle of the weekday, and hotels and residential uses experience peak demands overnight. Similarly, on weekdays, office and service industry land uses experience their peak demands, whereas restaurants and retail will experience peak demands on the weekends. Understanding these varying peaks for land uses allows for more flexible shared parking opportunities.

Shared parking is meant to optimize the use of the parking facility by providing more opportunities for use by various properties, which optimizes the use of the parking facility and allows properties to meet their parking demands. The parking location must be within reasonable walking distance of the land uses in which it serves. Rather than spaces being used part time for a land use, these unused spaces can be used towards parking for another development. The degree in which the parking is shared can differ. This can relate to employees and customers sharing parking or multiple facilities sharing parking.

**Benefits:**

- Reduces the cost of development which increases affordability
- Promotes development by optimizing the use of land
- City/Town is the keeper and facilitator of all agreements

**Challenges:**

- Requires verification, and enforcement.
- This strategy should be in accordance with a minimum of annual monitoring of parking demands.

**Strategy Best Practices**

- Update ordinance so that the distance to shared parking resources is between 1,000-1,300 feet to allow for greater flexibility and encourage centralized parking.

- Create a standard, yet flexible, template for shared parking agreements.

- Use signage or markings to indicate the shared parking rules and regulations.

- Use parking occupancy metrics for evaluating effectiveness of shared parking arrangements. Evaluate annually.

- Underutilized parking facilities will be identified on an annual basis as part of the annual data collection.

**Successful Implementation**
Beaverton, OR

Shared parking is part of a land use process where property owners can provide documents about their parking and show how hours and supply offset to serve both purposes. The city provided signage to the participants that included their desired branding elements, program hours, and legal terms.

## Strategy #9 - Repurpose Underutilized Parking and Infill Opportunities

The impacts of COVID-19 have made the need to repurpose underutilized parking more prevalent, with the sudden empty lots and garages and on-street spaces. However, even before COVID-19, in communities across the country there was a need to repurpose parking facilities or development as an infill opportunity. In the past, parking lots and garages in downtowns or mixed-use areas have deadened a block or half block as places for storing vehicles. As part of modernizing, parking facilities can be used more efficiently so that other underutilized parking facilities can then be repurposed for another use or infill opportunities.

In the wake of COVID-19, many opportunities for temporary (and sometimes more permanent) uses for underutilized parking emerged. On-street parking became expanded drop-off/pick-up zones for quick visits to restaurants or other services. They also became areas where businesses could expand their store area into the street, whether it was restaurant seating, or expanded area for a gym class, or a place to expand inventory racks for retail stores. Parking lots and garages were similarly repurposed. Many became testing locations, distribution centers, and vaccine locations.

> **Strategy Best Practices**
>
> - Establish a procedure for applying for repurposing a lot or public spaces, such as on-street parking. Applicants should prove severe and consistent underutilization (less than 50% occupied for more than 8 hours a day for the last month).
>
> - Require frequent status reports from the property or facility owner to monitor parking utilization.
>
> - City should identify underutilized facilities and identify these locations as infill opportunities. Use incentives to encourage development of these locations.

These are examples of possible temporary repurposing of parking facilities. There is a need for communities to have a standardized process for repurposing underutilized facilities (if temporary) and/or identifying them as infill opportunities (if long-term). Temporary repurposing underutilized parking allows parking facilities to be utilized as a new entity until the parking is in demand again. This is an especially important strategy as the community faces the continued impacts of COVID-19.

The intention of this strategy is to provide flexibility into the code to allow for lots or portions of garages or on-street parking to be repurposed as another use, such as the extension of business space, parklets, or some other necessary use.

**Benefits:**

- Optimizes the use of existing parking facilities
- Promotes development with infill opportunities

**Challenges:**

- This strategy may require the development of a permitting system specifically geared towards repurposing parking facilities.
- This strategy should be complimented with a minimum of annual monitoring of parking demands

## Strategy #10 - Parking Permit Program

It is very common for residential areas surrounding downtowns or mixed-use or commercial areas to see high numbers of visitors and employees seeking free and unrestricted on-street parking spaces. While this may not be an issue while parking in the downtown or mixed-use areas remains underutilized, as the parking is optimized, new development occurs, and parking management restrictions are implemented, the parking will overflow into free, unrestricted areas. Permit programs ensure that people are parking where they should and therefore make parking more available.

Parking permit programs protect parking spaces for those parking long periods of time consistently, such as residents or employees, so that these users are able to park in areas that are convenient and are not blocked by visitors. Permits require users to prove they are either residents or employees so that they can obtain a pass.

**Strategy Best Practices**

- Permits can be used for employees, residents, and transit commuters to allow these users to park longer than the time regulations allow.

- If permitted areas already exist within a city, make sure their location and associated permit restrictions or allowances are posted online.

- Collect parking occupancy and inventory data annually to proactively designate permit areas and adjust as necessary.

- Employee Permits – can be set up to be purchased by the employer or the employee. Designated employee areas should not be on-street, unless it is on a block that is underutilized. The number of permits allowed per business or per employee will have to be determined, as it will vary depending on the needs of the community.

- Residential Permits – purchased by the resident. Designated areas should cover a residential area (may be a few blocks). It should also be made clear that residents are not entitled to the space directly in front of their residence. The permit simply allows them to park outside of the established regulations.

A permit system is not the same as a space reservation. Permits do not guarantee an available space, rather they give the user the right to while restricting other users from parking in a designated area or at a designated time of day. The regulations should deter non-residents or non-employees from parking in an area, which then makes parking more available for the residents or employees who need to park there.

Permit programs can be flexible so that each neighborhood has their own regulations. For instance, one neighborhood restricts non-residential parking between 5pm and 6am, whereas another may allow non-permit holders but only for 2-hour time limits. The regulation should be tailored to mitigate the demand concerns.

**Benefits:**

- The program protects parking assets for residents and employees when they need parking most.
- Strengthening permitting allows visitors or short-term users access to appropriate locations.
- This strategy will optimize the use of underutilized parking facilities.

**Challenges:**

- Enforcement is required to encourage compliance to the parking permit program.
- The parking program must allow for flexibility and growth within the program to make beneficial changes to businesses and residents.

## Strategy #11 - New Parking Supply for Economic Development

New parking supply is a community asset that can support both new and existing development in a community. This strategy encourages cities and towns to develop a comprehensive approach that emphasizes leveraging parking infrastructure investment as a key element of community and economic development.

To promote the effective management of existing and future public parking resources a downtown area or central business area, a parking district approach which can coordinate and manage parking and mobility related issues is beneficial for success. Parking districts offer a mechanism to invest and manage parking resources within a defined geographic area.

**Benefits:**

- This strategy will create a standard procedure for the City and developers to follow to ensure parking supply matches the pace of growth.
- Parking for economic development proactively engages departments and developers in the decision-making process.

**Challenges:**

- A clear vision and goals are required to determine how to identify and locate new parking supply.
- This strategy requires the parking management staff to look beyond parking and incentivize economic growth while determining how parking fits with other strategies

**Strategy Best Practices**

- Form a committee between city departments and developers to guide the process.
- A shared parking process is important to success since it offers developers flexibility to meet their parking needs.
- If new parking is not needed, identify underutilized facilities (See Strategy #2).
- Identify investment strategies:
  - Invest in transformation project
  - Parking investment district
  - Identify properties to infill or become parking

**Successful Implementation**

Boise, ID (specifically the Capital City Development Corporation or CCDC) utilized an approach of building strategically located mixed-use parking structures to support downtown businesses since the CBD area did not have a minimum parking requirement. Bond debt for these structures was largely paid through Tax Increment Financing funds. They did not see this approach as a giveaway to developers, but rather as an agency investment strategy through which they targeted a five to one return on any parking or related infrastructure development.

Beaverton, OR created a Development Division to work closely with economic development agencies in the community. This successful partnership has allowed the city and those agencies to move many projects forward. Their Restaurant Row is an example of their success and has become a destination district.

## Strategies for Managing Travel Behavior

### Strategy #12 – Parking Time Limit Restrictions

One of the basic initial tools to manage parking allocation and demand is to implement parking regulations in the form of time limits. Time limits regulate how long vehicles can park in spaces, with appropriate times set to support adjacent uses. The intent is to encourage the turnover of spaces, so more parking is available for customers, thereby providing better access to businesses. The use of time limits also encourages short-term parkers to use on-street parking and directs people who will park for longer periods of time (e.g., employees, residents, transit users, etc.) to off-street parking facilities. The intent is to create more parking availability in the prime spaces and make more efficient use of the entire system.

This strategy also helps balance demands between short- and long-term users and allocate demand appropriately among resources. This technique is particularly effective in the on-street parking environment, where spaces need to turnover to support short-term transactions at retail and commercial businesses. An example of a long-term user is an employee, who will be parked for multiple hours, if not all day.

The technique is only as effective as the enforcement practices that support the policies. If enforcement is consistent, the time limits will promote turnover. If enforcement is inconsistent, the public will take more chances because they know they are likely to get away with parking violations.

**Benefits:**

- Using or updating time limits encourages utilization of underutilized parking while reducing the need for new parking development.
- This strategy encourages turnover and shifts long-term parking users to less convenient facilities.

**Challenges:**

- Areas with time limited parking must have access to viable transportation choices.
- This strategy should be complimented by annual monitoring of parking demands.

Shared parking approaches can change based on parking type and can obtain different benefits from each.

1. On-street parking on commercial streets. These are the most convenient parking spaces and produce the most turnover to be utilized for short stops.

2. Off-street public parking facilities & on-street parking outside the commercial streets. These parking facilities are less convenient than on-street parking, so they are more suitable for longer stops. This can include employee parking or resident parking.

3. Off-street private parking facilities. This parking facility type provides parking that is often most convenient for a specific land use but can also be convenient for nearby uses. They can also serve nearby facilities that may have different peaks.

**Strategy Best Practices**

- Post time limit information and locations on the city or town website.

- Establish annual, consistent, and transparent communication with the public and business owners regarding changes to parking time limits. Patrons and business owners will want to know what is changing, when, and why. An annual report (discussed later) can be used as this messaging tool.

- Conduct annual inventory and occupancy data collection to monitor and track parking occupancies in the area. Adjust parking time limits as parking occupancy data dictates. As demand increases, consider shortening time limits in certain areas. Extend hours of enforcement (if it is found that higher demands are occurring outside enforcement hours)

## Strategy #13 – Paid Parking

When parking demands in a community or downtown area of a community become so high that parking facilities (on- and off-street) operate above the system's effective capacity (85% occupancy), paid parking becomes a highly effective way to influence behavior, redistribute parking demands, and promote economic activity through turnover of parking spaces. The fee for parking encourages people to choose between the priced transaction, parking further away in a free or lower priced facility or use an alternative transportation option to reach their destination. The result is creation of available spaces in high-demand areas and facilitating access to businesses.

It is important to understand that even when parking in a community may be free, there is still a cost that is passed onto people unbeknownst to them. It requires money to construct, designate, regulate, and manage parking, whether it is on the street, in a lot, or a garage. These costs are absorbed by private property owners, store tenants, facility managers, and the City. As a result, these costs are usually passed on to the customers through marked up prices on goods and services and rents. By managing parking appropriately and providing a cost to it, the consumer is able to make informed decisions on how they spend their money.

Implementing paid parking develops an on-going funding mechanism to support parking and mobility programmatic and infrastructure investment. Paid parking revenue can be used for general operating and management expenses for a community's parking program, streetscape enhancements, operation and maintenance of smart parking meters and mobile apps, public art, and other essential and/or desired projects.

**Strategy Best Practices**

- Offer lower-cost or free parking options further away from high-demand areas encourages people to park further away, thus distributing parking demand in existing parking assets.

- On-street pricing should be more expensive than off-street pricing so that people are encouraged to park for longer periods of time in off-street locations, increasing availability of on-street spaces.

- Invest in multimodal transportation so that people have alternative options available to them for travel.

- Ongoing and consistent monitoring of the paid parking system to evaluate pricing changes or system expansion.

- Review and pilot test latest technology with regard to payment options.

- Transparent communication with business owners, residents, and public on implementing paid parking.

**Benefits:**

- Effectively distributes demand and optimizes use of existing parking assets.
- Encourages vehicle turnover, which increases access to businesses.

**Challenges:**

- There are usually negative feelings from business owners and the public with initial implementation. Be transparent, be proactive in communication, and use data and metrics to make system decisions. Incorporate feedback from the public and business owners into the development and rollout of the paid parking program.
- Identify funding for technology and software investment. If multiple technologies are selected, ensure platform integration is compatible.
- Training of staff and public on use and maintenance of the system (for staff) will be needed.

## Strategy #14 – Wayfinding

Parking wayfinding is extremely helpful in directing people to desired parking locations. Effective means of conducting wayfinding is through stationary signage, dynamic signage (electronic signs that change messages to indicate how many spaces are open in a facility), digital maps posted on websites, and smartphone applications.

Consistently themed branding and messaging of wayfinding and regulatory signage is a critical component of reducing visitor confusion on where, when, and how to park. The images on this page are from Seattle Department of Transportation (SDOT) and illustrate how the regulatory signage for on-street, parking availability for off-street, and direction signage has a coordinated theme.

**Benefits:**

- Wayfinding helps distribute parking demand, which improves parking availability.
- Encourages parking regulation compliance.
- Wayfinding increases communication with residents and visitors.

**Challenges:**

- Introducing wayfinding requires coordination and production of new signage or technology.
- Wayfinding may be considered as more of an investment than other strategies depending on static or dynamic signs as well as the number of signs needed.
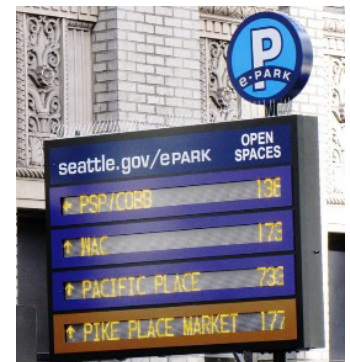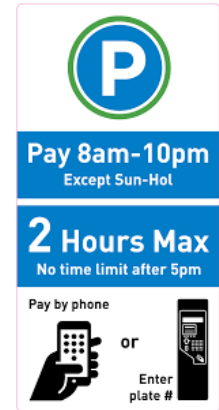
### Strategy Best Practices

- Conduct an inventory of existing wayfinding signs, destination signs, parking signs, and associated messaging.
- Conduct a survey of business owners, employees, visitors, residents, and other stakeholders and user groups to solicit input on what is or is not working with existing signage.
- Coordinate wayfinding and branding ideas with private off-street owners so garage/lot signage fits with the city's theme.
- Develop a wayfinding plan that incorporates a common brand theme and identifies types of signage and specific location needed to direct visitors to parking areas efficiently.
- Create a map in the branding and post on the community's website
- Manufacture and add new signage in the new theme according to a Wayfinding Plan

## Strategy #15 – Plan for Technology

New technologies are emerging that will greatly change the parking landscape in ways that would have been hard to imagine even a few years ago. The impact of smart meters, wireless sensors, web-based parking availability data, on-line parking reservation systems, and satellite-based mechanisms that employ GPS and GIS geo-fencing technologies will combine to create Smart Parking Systems. The technology will help to reduce greenhouse gas emissions, improve parking availability, and make paying for parking easier and more customer friendly. This data-rich world of smart parking will allow communities to better utilize parking resources and recapture some of the value inherent in the over-built parking supply from the past. The technology can also be used to provide better designed parking facilities that are integrated with a variety of mixed-uses and that better complement the urban fabric of a community.

**Strategy Best Practices**

- Conduct a SWOT analysis of existing procedures for collecting and processing parking and enforcement data.
- Identify goals for the community where technology can potentially help with collection of performance metrics for those goals.
- Pilot test various technologies to determine how well they perform and whether they help the city or town meet its goals

With the wide range of technologies, and new ones continuously emerging, it is important to research and pilot test technologies prior to making the large investment and implementation. Technology is most efficient when the community understand what it hopes to gain by using the technology. For instance, is the goal to distribute users more efficiently (real-time parking availability, in-app navigation), or to improve enforcement (handheld GPS, LPR, on-line permitting), or streamline collection of data to help make informed decisions (backend reporting and platform for using data from various data sources). It is easy to get sucked into bells and whistles that technology has to offer. Knowing the need for technology can streamline and whittle down the technology options. It is also important to pilot test technologies before implementing.

**Benefits:**

- Enhancement of the user experience.
- Increases convenience for data collection, parking management, and transaction processing.
- Reduces staff time for permitting and payment administration and management.
- Balances parking access and utilization.

**Challenges:**

- Having a clear goal for how technology will be used can help whittle down what technology is really needed and useful.
- Introducing technology requires training for staff who will utilize the new technology.
- Messaging and educational campaigns for the public on how to use the technology will be necessary.

**Successful Implementation**

Boise, ID

Boise decided to invest in technology to automate their system approximately seven years ago. While it was a large investment ($2 million) and there was concern about losing the friendly feel of downtown, they have found that the system is more efficient.

## Strategy #16 – Transportation Demand Management & Mobility

Transportation Demand Management (TDM) strategies consist of programs, services, and policies designed to encourage transportation alternatives. Implementation of TDM measures helps mitigate traffic impacts and parking demand associated with single occupancy vehicle (SOV) trips. TDM measures vary and can include bicycle- and pedestrian-facility improvements; promotion of vanpool, carpool, and transit; provision of other shared mobility services like on-demand rideshare and shuttle services; and commute incentive programs to encourage employees to use transit, bike, or walk to work.
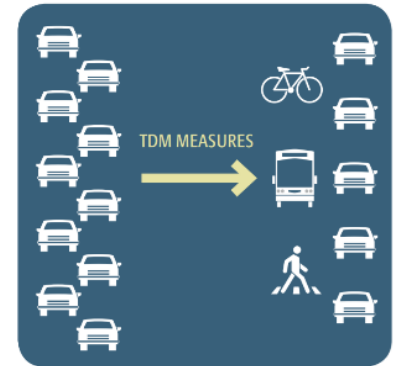
TDM complements parking management strategies and is a cost-effective approach to improve mobility within the area. Enhancement of mobility options within a community will create more options for moving both people and goods. By leveraging the existing multimodal options available within the City, bikes, scooters, transit, sidewalks, etc., communities can reduce its reliance on single occupancy vehicles while maintaining the same level of mobility and access.

The basic concept is to provide a service that helps employers access a range of parking and trip reduction tools and programs. Connecting developers to resources that can help them reduce parking demands (and therefore potentially lower the amount of parking they would be required to provide) is win-win scenario. The key is having a well-developed program that offers a range of choices that developers or businesses can choose from depending on the type of business or development they are providing.

**Benefits:**

- Reduces reliance on single occupancy vehicle
- Provides commuter options for easier travel
- Can be more cost efficient since TDM strategies have a wide-ranging impact

**Challenges:**

- Enhancing and leveraging mobility options requires funding.
- This strategy will always be evolving and changing. Must track usage of mobility options in conjunction with parking data to draw conclusions about how multimodal changes impact parking demand and vice versa.
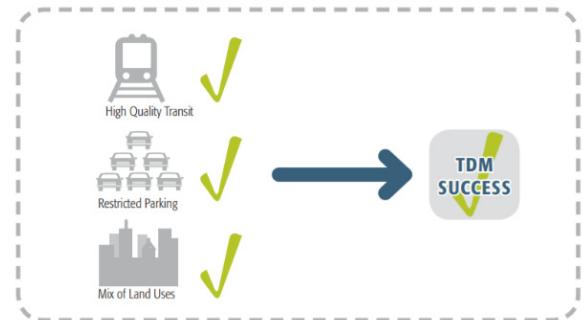
### Strategy Best Practices

- Develop a TDM Program (see following page) that identifies specific community goals for mobility.
- Assess annual usage of bikes, scooters, transit, and pedestrian volumes, and compare to parking occupancy to identify connectivity gaps and opportunities.
- Consider programs or invest in technologies to reach mobility goals i.e. Complete Streets, transit hub, bus services, bike facilities, etc.
- Ordinances should be updated to reflect and promote new mobility goals and associated programs and technology as appropriate.
- Identify investment opportunities early to plan, design, and construct multimodal projects for enhanced connectivity.

## Developing a TDM Program

Developing a TDM program is the first step towards intentional planning and investing in improvements. With planned intention and a comprehensive vision, there will likely be greater success in building a viable network for people to move to and through a community without relying on a personal vehicle. Agencies across the region have started the work already:

- The WFRC maintains a Congestion Management Process (CMP), which is an analysis tool that supports the Regional Transportation Plan and Transportation Improvement Program. While the CMP has a number of uses, one of them is its support of TDM strategies. If additional capacity in the region is deemed necessary, TDM measures are incorporated to minimize or eliminate the need for additional capacity.

- Salt Lake County and Mountainland Association of Governments each have an Active Transportation Plan that identifies and prioritizes specific investments for bicycle connectivity throughout the county.

- As a transit agency, Utah Transit Authority is inherently promoting TDM programs to get people out of their vehicles. UTA promotes transit use, as well as rideshare, vanpool, microtransit, and provides coordinated mobility services.

Local communities can develop their own TDM program that enhances and builds off of the precedent that regional and state agencies have established. The following diagram outlines steps for implementing a local TDM program.

**Step 1: Determine a Management Structure**
- Define and organizational structure with committed leadership
- Develop a staffing plan to administer the TDM strategies to be deployed
- Define key stakeholders to periodically engage in overall direction of program

**Step 2: Identify a Budget**
- Determine funding sources and outline how monies can be spent
- Develop a budget with flexibility to increase over time as measures prove to be effective

**Step 3: Develop Goals and Objectives**
- Identify current challenges and issues that need to be addressed
- Determine objectives of the program, who will be targeted and what outcomes are expected

**Step 4: Set Performance Metrics**
- Set metrics that will be evaluated on an ongoing basis (e.g. number of people enrolled in program, reduction in parking pass sales, etc.)

**Step 5: Develop a Brand and Marketing Protocol**
- Develop a brand that represents the goals and objectives of the plan
- Develop marketing and PR protocols that advertise the program on an ongoing basis
- Develop a website to serve as the central location for information regarding the program

**Step 6: Develop and Implement TDM Strategies**
- Develop a series of phased strategies gathered from ideas presented in this Quick Guide
- TDM program are ever evolving, develop a list of strategies that enhance each other and can be phased in and out based on their level of success

**Step 7: Create an Annual Monitoring Program**
- Conduct a yearly survey (at a minimum) to poll attitudes from program users of program offerings and new ideas
- Document program performance against performance metrics
- Define strategies to enhance the program based on feedback and data

**Nurture Evolution of the Program to Increase Success and Coverage**
- Modify management structure as needs change
- Adjust budget and funding mechanisms as demands change
- Revisit goals, objectives and performance metrics periodically
- Continually test new ideas and reinforce those that are successful

## Summary of Strategies and Relative Impact

Many of the impacts cannot be objectively measured because of the high variability in application of each strategy from city to city. However, according to the Victoria Transport Policy Institute, a comprehensive parking management program, which includes the strategies included in the table below, can reduce parking demand by 30-50%. This is compared to programs that have minimum parking requirements, free and unregulated parking, and parking that is restricted to specific users (private parking).

There are also general financial benefits for implementing a comprehensive parking program. If less parking is needed because of the parking management strategies implemented, more development can occur, people can reduce the number of vehicles they own, and rents for apartment, office, or retail space can be reduced.

The following is a summary of the strategies and their relative impacts that should be included in a comprehensive parking program for a city within the Region.

| Strategy | Description | Impact[1] |
|---|---|---|
| Right-Size Parking Requirements | Aligns parking requirements with actual parking needs in the community and to transition to a system that utilizes shared and leased parking supply. | • Encourages development feasibility<br>• Supports infill development<br>• Encourages high density, mixed-use land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Plan for Mobility Hubs | Transit stations or centers that bring together many different forms of transportation in one location. They may also have other forms of land uses as well to provide convenience for users. | • Enhances mobility by connecting many forms of transportation in one location<br>• Encourages multimodal transportation<br>• 5-15% reduced parking demand[1] |
| Enforcement | Enforcement ensures compliance with parking regulations, which improve overall system efficiency. | • Encourages compliance with parking regulations, which encourages parking efficiency<br>• Impact varies with regard to parking demand |
| Transit Station Parking Planning | Managing transit station parking supports and encourages transit ridership by preserving adequate parking spaces for transit users. | • Supports transit ridership by securing parking for riders<br>• 10-30% reduced parking demand[1] |
| Curb Lane Management | Operate and manage the various curb uses effectively to provide access for a variety of users. | • Efficient use of curb space for all users<br>• 10-30% reduced parking demand[1] |
| Data-Based Decision Making | Use of local data to monitor the parking system and inform policy and practice changes. | • Tracks and monitors parking program trends<br>• No parking demand impacts |

| Strategy | Description | Impact[1] |
|---|---|---|
| Annual Reporting | An annual report communicates data analyses and changes to the parking system. Used as a monitoring and communication tool. | • Tracks and monitors parking program trends<br>• Effective parking program communication tool<br>• No parking demand impacts |
| Flexible Shared Parking | Shared parking is meant to optimize the use of the parking facility by providing more opportunities for use by various properties, which optimizes the use of the parking facility and allows properties to meet their parking demands. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages high density, mixed-use land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Repurpose Underutilized Parking and Infill Opportunities | Lots that are underutilized can be repurposed temporarily or slated for infill development. | • Encourages clustered land use development – which encourages alternative modes and trip reduction<br>• 10-30% reduced parking demand[1] |
| Parking Permit Program | Parking permit programs protect parking spaces for people parking for long periods of time consistently, such as residents or employees. | • Distribution of parking demand to optimize use of existing assets<br>• 10-30% reduced parking demand[1] |
| New Parking Supply for Economic Development | Development of a comprehensive approach to planning parking infrastructure investment as a key element of community and economic development. | • Improves development feasibility<br>• Encourages "Right-Sized" parking for new development<br>• Impact varies – new parking supply encourages the use of vehicles, however, if "right-sized" and planned to optimize existing parking supply, parking demand can be reduced |
| Time Limit Restrictions | Time limits regulate how long vehicles can park in spaces to encourage the turnover of spaces. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages turnover, which improves access to businesses<br>• 10-30% reduced parking demand[1] |
| Paid Parking | Use of meters or smartphone applications to collect a fee to park. Implemented in high demand areas to encourage turnover. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages turnover, which improves access to businesses<br>• 10-30% reduced parking demand[1] |

| Strategy | Description | Impact[1] |
|---|---|---|
| Wayfinding | Themed wayfinding parking directs people to desired parking locations, effectively distributing parking demands. | • Distribution of parking demand to optimize use of existing assets<br>• 5-15% reduced parking demand[1] |
| Plan for Technology | With the wide range of technologies, and new ones continuously emerging, it is important to research and pilot test technologies prior to making the large investment and implementation. | • Distribution of parking demand to optimize use of existing assets<br>• Encourages compliance of parking regulations, which makes parking more available and efficient<br>• Impacts vary due to the wide range of technology options and extent of their implementation and use |
| Transportation Demand Management and Mobility | Transportation Demand Management (TDM) strategies consist of programs, services, and policies designed to encourage transportation alternatives. | • Improves overall mobility<br>• Supports reduced parking ratios<br>• Encourages higher density, mixed-use development<br>• 5-30% reduced parking demand[1]– varies widely depending on the type of strategy and extent of implementation |

[1]*Victoria Transport Policy Institute, https://www.vtpi.org/tdm/tdm28.htm#_Toc128220476*

# 9. Appendices

## 9. Appendices

**Appendix A – Ogden City Parking Study**

**Appendix B – South Salt Lake Parking Study**

# OGDEN CITY

## PARKING STUDY

# Table of Contents

# 1. Introduction

# 1. Introduction

The Wasatch Front Regional Council (WFRC) in partnership with the Mountainland Association of Governments (MAG), Salt Lake County, the Utah Department of Transportation (UDOT), and the Utah Transit Authority (UTA) are leading the Utah Parking Modernization Initiative (Initiative) to localize parking data and strategies so that communities within the Region are able to identify parking inefficiencies and appropriate solutions to proactively manage parking. As part of this Initiative, two Partnership Cities, South Salt Lake and Ogden City, were identified to conduct parking studies for their cities. The process and findings of these studies could then be used to localize data rather than relying on national standards.

The purpose of this Ogden City Partnership Parking Study is to assess existing parking demand in Downtown Ogden and for various land uses within the city. The land use data will be compared to the parking requirements identified in the City's parking code as well as national standards. The Study identifies strategies that aim to improve parking and transportation throughout the city. The Study concludes with an implementation plan for for Ogden City that will integrate both parking strategies and travel demand management strategies that support the City's growth and development goals.

This study is also part of a regional effort to identify challenges and solutions that may be highly effective today along the Wasatch Front. The upcoming "best practices" guide for the region can be used to support these decisions.

*It is important to note that this Study, including the data collection, was started prior to the shutdowns and economic impacts of COVID-19 in 2020. At the completion of the study, the full economic impacts and transportation impacts have yet to be realized. The recommendations for this Study are intentionally flexible with guidance, arming the City with the knowledge and tools necessary to make informed, data-driven decisions. The impacts of COVID-19 are not fully known at the conclusion of this report, and will require a second look at development trends, transportation habits, and parking patterns under "new normal" future conditions.*

## History of Parking and Impacts on the Built Environment

Parking modernization is a concept for identifying parking strategies that reflect the world today and are flexible to grow with the future. It investigates and updates the antiquated regulations and policies that have guided parking in many communities across the Region and country since the 1950s. Since the car became a popular mode of transportation, city codes have attempted to identify and require the proper number of parking spaces necessary for development based on the type of land use and size.

Parking policy has largely been reactive to changes in the community—meaning the parking codes change only after a problem has been identified. A proactive approach would involve identifying growth trends and goals within the community, adjusting to prepare for those changes, and guiding growth in a manner that supports larger community goals. Over time, complaints about a parking shortage (typically for a peak period despite a large supply otherwise), often led to parking policies and economic practices that shaped cities in ways that are now considered a detriment. The following images show how parking has been handled historically across the country.



**Parking in the 1920s**

- Traffic laws and regulations were starting to emerge
- Cars become common but streets still mixed with cars and pedestrians
- Historic downtown building rows added space for parking on-street.
- Parking lots were starting to form around land uses to accommodate cars

**Parking in the 1950s – 1980s**

- Cars are favored over transit and many local transit services abandoned
- Parking codes adopted to ensure parking around land uses
- Piecemeal approach, by project
- Encouraged the pattern of isolated buildings ringed with parking familiar to us today

## Parking in the 1980s – 2000s

- Surface lots are prominent feature in downtowns and suburbs
- Encourage vehicle travel and discourage walking
- Deteriorating community attractiveness and connectivity
- Reliance on ITE and ULI National Standards
- Awareness growing that surface parking lots often negatively impact net revenues

## Parking Today

- Focus on connectivity and multimodal travel to reduce vehicle travel and parking
- Emphasis on building patterns that enhance walkability, character, and attractiveness
- Parking seen as tool to support economic growth and viability
- Growth and transportation intertwined
- Changing nature of retail
- High land costs and shift toward parking garages make parking an expense
- Willingness to share and manage parking cooperatively
- Redevelopment agencies and cities negotiate parking requirements to suit both project and neighborhood goals
- Using parking studies and monitoring to balance supply and demand



*Source: https://www.ogdencity.com/965/Community-Economic-Development*

## Parking on the Wasatch Front

Communities across the Wasatch Front are experiencing an evolution of city design. Commutes, shopping patterns, and personal transportation habits are changing. Parking needs to evolve, too. Some commonly faced challenges include:

- An oversupply of parking for many land uses. This is particularly concerning in downtown areas or areas with mixed uses or higher density, such as areas near transit stations. Parking codes tend to cater to suburban-style development patterns. Requiring parking for every individual land use in close proximity does not adequately reflect how mixed-use, higher density areas operate.

- Concern for downtown/city center character, economic success, and diversity where vacant parking may act as a barrier.

- Little to no management and control of existing parking assets, both public and private, creating an imbalance between supply and demand.

- Concern for increasing costs and feasibility of new projects, due in part to the high cost of providing parking and its impact on affordability.

- Lingering resistance to paying for parking. However, this is giving way to paid parking in highly desirable areas.

- Reliance on national standards or standards from other communities that don't match the unique character, and growth goals for the community.

## What Does It Mean to Modernize Parking?

Modernizing parking regulations, standards, and practices can mean many things depending on the community. However, generally speaking, to modernize parking management means to consider a number of community elements, beyond parking demand and land use.

First, a number of goals for the City must be recognized. The following graphic depicts various goals for a parking system. These are not goals traditionally thought of when thinking of parking, at least not 10 to 20 years ago. Today, parking is considered part of the larger fabric of the community, integrating and connecting land use, transportation, and community character.

### Overarching Parking Program Goals

- Support Existing Businesses and Residents
- Create Attractive Places
- Promote Equity
- Promote Alternative Transportation
- Promote Economic Growth
- Enhance Safety
- Promote Sustainability

## What is a Parking Study?

A parking study presents information on a community's parking system. First, an area is designated to study. This can be a downtown area or any area that is of interest to monitor for the community. The study process includes collection of pertinent data. At its base, this includes parking inventory and number of parked vehicles to determine occupancy for each facility in the defined area. The study should also evaluate existing policies that dictate parking regulations and practices for enforcing those regulations. Based on the analysis, the study will draw conclusions on what is working well and what can be improved with regard to parking. The data informs what strategy to implement next to make the improvements and what strategies to plan for in the future.

Once complete, the data compiled in the study is now a baseline of information for conducting updates to the data annually and continuing to implement recommendations as the data dictates.

**A successful parking system should…**

1. Support connectivity to transportation, land use, and economic development;

2. Provide access to businesses and destinations, linking parking to the economic enhancement of the community;

3. Serve as a transition point where alternative modes of transportation can cross paths and connect; and

4. Play a role in sustainability, measured by reducing traffic, congestion, and, therefore, greenhouse gas emissions.

Second, several elements about the community can be studied to get an accurate depiction of the parking system as well as the community characteristics that impact the parking system. The graphic below demonstrates many of the community-specific data that could be collected, analyzed, and/or reviewed as part of the study process. The depth to which these are all analyzed can vary depending on the goals, time, and money available to study them. These are all community-specific attributes, not data taken and applied from another community or from national standards, thus creating a more customized solution.

## Planning Process

For this study, each of the below attributes were reviewed and analyzed in some capacity. This document includes the following sections:

- Background information on the City's planning efforts and definitions for this study
- Review of existing data for Downtown Ogden and a review of land-use-specific demand observations
- Summary of how Transportation Demand Management can improve parking demand
- Summary of a peer roundtable discussion
- Recommendations by category
- Data collection plan and metrics
- Implementation timeline

### Community-Specific Study Attributes
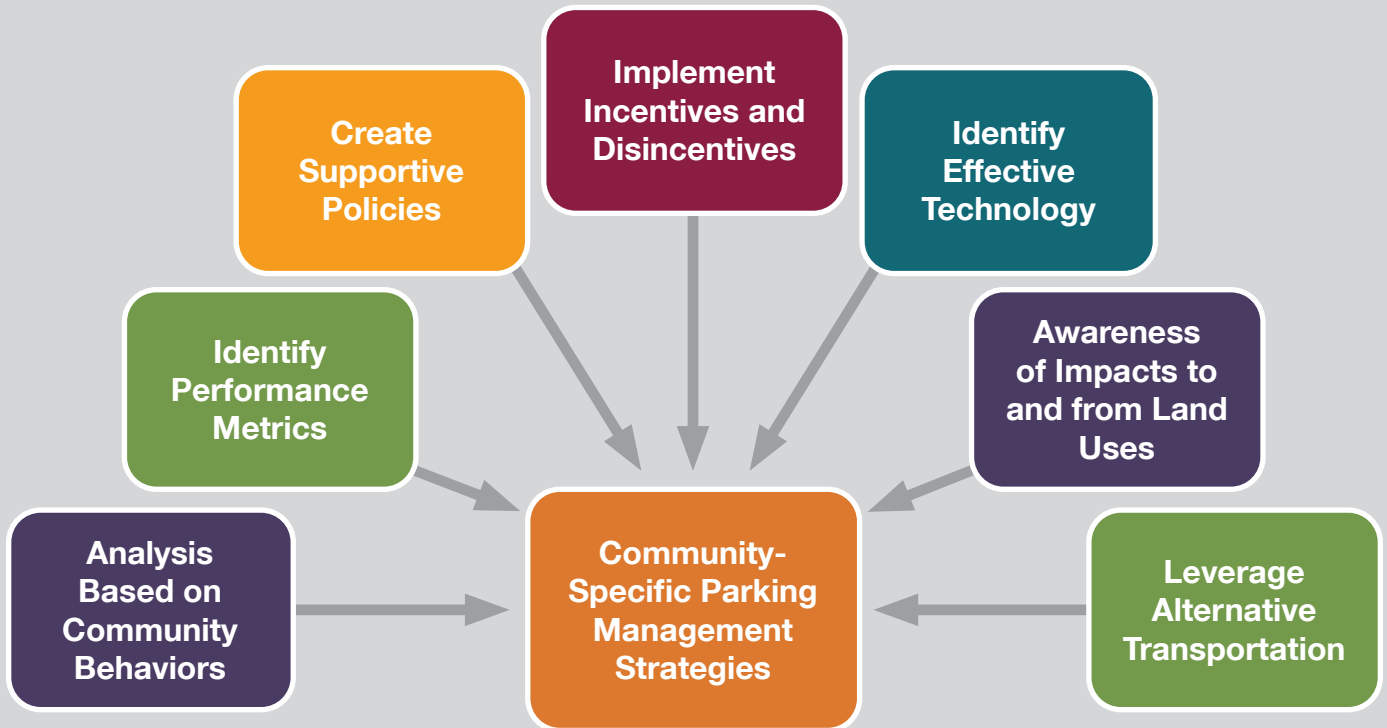
# 2. Planning Context

# 2. Planning Context

Ogden City has completed various plans to outline goals and framework for the City's future development. The following plans are notable to consider when modernizing the parking initiative in the City.

### 1977 Downtown Plan

The 1977 Downtown Plan had as an objective to make the Downtown competitive with regional shopping malls. One major action was to transform the existing Downtown parking facilities, comprising meters, paid parking lots, and business lots, into a more Downtown and user-friendly parking system. The Plan determined that parking needed to be free. The Plan also developed strategic parking areas for Downtown Ogden. The Plan created 2,971 additional stalls between the City of Ogden and the Ogden RDA.

### 2002 General Plan

The most recent General Plan for the City of Ogden highlights key visions for the future development of the City, including information on community identity, economic development, housing, land use, open space, and transportation. The following goals are implemented for the future of Ogden in the 2002 General Plan:

- Implement community facilities and services that provide users with a healthy and safe community.
- Identify a community identity powered by an environment that is people-friendly, historic, artistic, and architectural.
- Enhance economic development with the intention of revitalizing older business areas and improving the standard of living, promoting a business-friendly environment.
- Enhance environmental resources throughout the City of Ogden.
- Maintain housing adequately, providing a vast diversity in cost and density while improving safety and stability in neighborhoods.
- Maintain park and recreation facilities so that they are safe, clean, and accessible, providing a citywide network of multi-use paths in addition to other facilities for users.
- Provide safe transportation methods that are accessible throughout the entirety of the city.

### 2009 Central Business District Community Plan

The Central Business District (CBD) Community Plan analyzed the existing conditions of the CBD in Ogden and comprised community and political commentary to identify future objectives and goals for the District. The Plan aims to enhance community identity, land use, and transportation, focusing on the improvement of land use for parking, development of alternative methods of transportation, improvement of vehicular movement, and enhancement of the District's urban identity in the Downtown area.

The following are overarching goals for Ogden based on the documents referenced in the Planning Context.

- Goal 1: Enhance economic development through revitalization of older business areas.
- Goal 2: Improve housing opportunities and safety in communities.
- Goal 3: Emphasize land use revitalization within the city.
- Goal 4: Provide improved access to alternative methods of transportation.

These goals all work to improve the quality of life within Ogden City through focusing on the transportation system and land use, and how this connects with the economy.

The focus of this study is to examine the existing parking demand in the Downtown area and for various land use sites around the city. The results of the observed demand for the land use sites will be compared to the existing code requirements as well as national standards so that the City can right-size their parking requirements.

# 3. Existing Parking Conditions

# 3. Existing Parking Conditions

This section explores the data realities from sources to assess the existing parking conditions from two analyses:

1. Downtown parking analysis
2. Parking occupancy data from sites that represent land uses within the city

The existing parking conditions are analyzed through the identification of parking inventory as well as occupancy at various times. Identifying trends of the existing parking conditions will aid in identifying challenges and opportunities in the parking system and producing strategies to improve it.

## Definition of Terms

The following terms and concepts are used throughout this initiative report to describe the performance of the parking system or individual components of the City's system.

**Effective Capacity:** Effective capacity is an industry-accepted occupancy threshold for parking facilities that indicates the efficiency of a facility of system. Based on industry standards, the primary threshold for effective capacity is at 85 percent of the total capacity of the parking system or facility in question. Greater detail on this term is provided on the next page.

**Parking Demand:** Parking demand is the projected number of vehicles generated by visitors or tenants of a land use. Each business or land use generates a specific quantity of demand for parking spaces to accommodate their users. The total number of spaces generated by business or land use is based on the land use intensity (often building square footage or number of dwelling-units).

**Parking Facility:** A parking facility refers to any on- or off-street location designated for vehicular parking.

**Parking Occupancy:** Parking occupancy is the percentage of occupied spaces in a parking facility at any given time. This ratio is calculated by dividing the number of observed vehicles parking in a facility by the number of total spaces in that facility.

**Parking System:** A parking system refers to the entire collection of parking spaces, parking facilities, technologies, equipment, policies, regulations, and personnel that work cohesively to provide parking in a given area.

**Transportation Demand Management (TDM) Program:** A TDM program is a set of measures including policies, economic incentives, and programmatic measures that aims to reduce vehicle miles traveled and, in turn, improve traffic congestion, and parking demand. TDM strategies often impact environmental, conservation and sustainability efforts as well. They can include measures that work to reduce single-occupancy vehicle trips, increase vehicle occupancy, and/or shift travel to other modes or non-peak travel periods. This is often achieved through financial incentives and local infrastructure and land use policies that constrain parking supply, densifies uses, and provides a convenient suite of transportation options, including walking, bicycling, transit, and rideshare.

# Performance Metrics and Thresholds

Parking occupancy is a key performance measure used to evaluate the effectiveness of the parking requirements and observed demand. The industry-accepted thresholds for parking occupancy are shown below. The ideal goal is to have a parking system, site, or urban center where 70% to 85% of the available parking spaces are occupied during the peak conditions. If too many spaces are occupied, then the remaining spaces are too hard to find. If too few spaces are occupied, then the land is not being used to its greatest potential and the parking can absorb more demand.

| **Under 70% Occupancy** | **70-85% Occupancy** | **Over 85% Occupancy** | **Over 90-95% Occupancy** |
|---|---|---|---|
| Under Capacity | Optimum Capacity | Effective Capacity | Residential Effective Capacity |

An exception to the 85% effective capacity threshold is for residential land uses. Residents are extremely familiar with their parking options and will habitually park in the same location year after year. Therefore, the parking occupancy threshold can be increased to 90%, or even 95% in some cases, for these types of land uses.

The following are broad examples of parking management strategies that can be introduced as parking occupancies increase. The intention is not to immediately jump to more intense parking management strategies. This can cause pushback and concern from businesses and residents. Rather, strategies should be implemented gradually, giving time to analyze trends and make minor adjustments that improve the parking program that are based on data and informed by the community's needs.

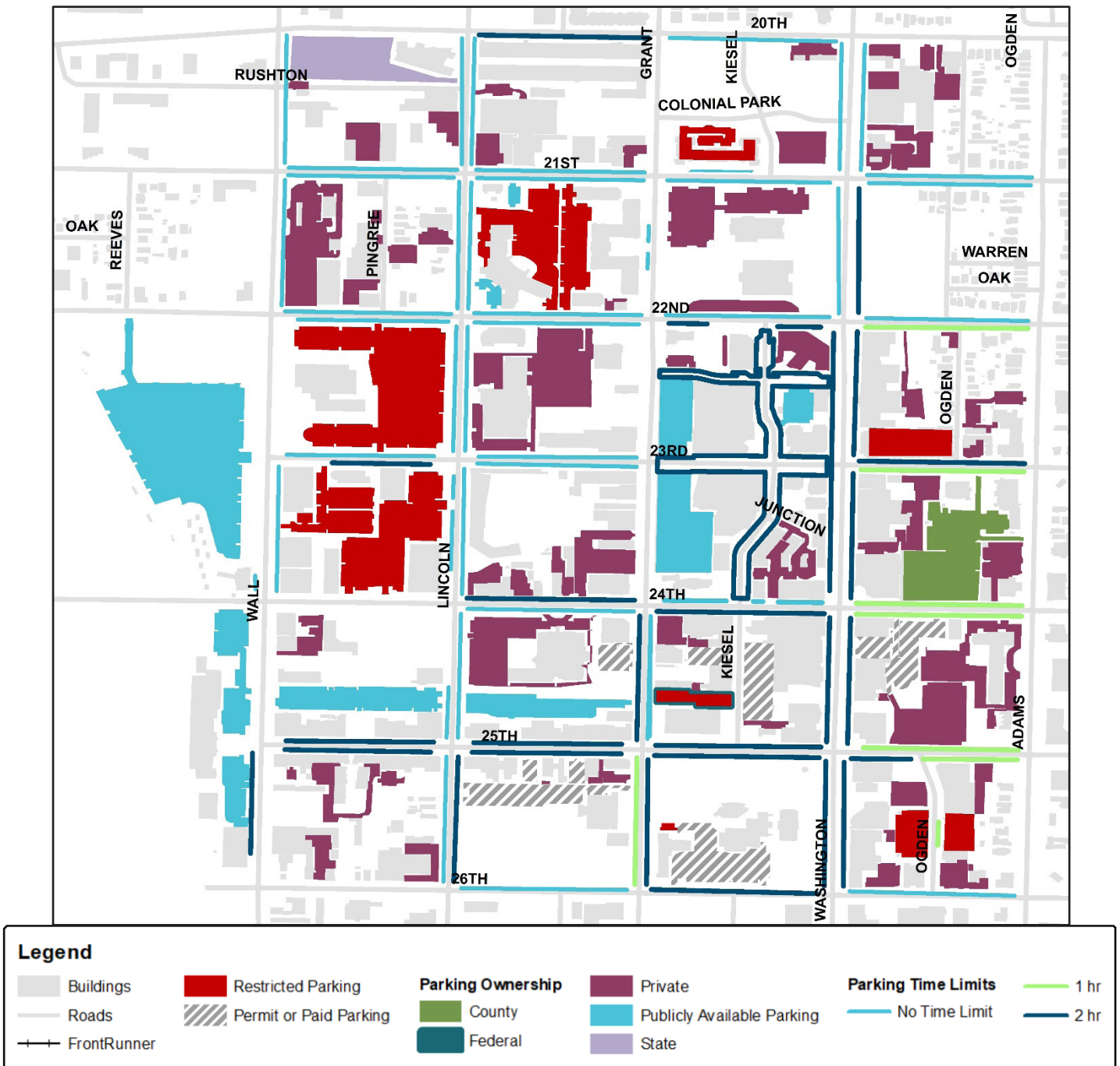| **No/Minimal Regulations** | • Parking is available and abundant<br>• No concern from residents and businesses |
|---|---|
| **Time Restrictions** | • Promote efficient use of parking through turnover, encouraging long-term parkers to look for other spaces or arrival options<br>• Managed through signage and enforcement |
| **Permit Parking Protections** | • Introduce permit parking system that restricts who can park in specific lots or streets (e.g., residential neighborhoods)<br>• Helps manage the overflow of parking from adjacent commercial areas |
| **Transportation Demand Management** | • Improvements to cycling, walking, transit, micro-mobility amenities over parking improvements |
| **Introduce Paid Parking** | • After resources are exhausted and parking demand in area grows past the acceptable threshold (85%), paid parking should be introduced |
| **Introduce Additional Parking** | • If parking demands continue to exceed the acceptable threshold (85%), more parking should be provided |

## Downtown Ogden Parking Analysis

Ogden City Planning staff conducted parking occupancy and inventory counts in the Downtown public and private parking facilities in Fall 2019. Data was collected over two weekdays, during morning, afternoon, and evening periods for all facilities in the Downtown.

Ogden City's Downtown parking facilities, on-street and off-street, public and private, are shown in the study area map below, **Figure 1**. The Downtown area experiences the highest concentration of users and is also considered a hub of development and entertainment for the City. The inventory of the study area is divided by parking ownership.

### Figure 1 – Downtown Ogden Study Area and Parking Facilities by Type



**Legend**

| | | | |
|---|---|---|---|
| Buildings | Restricted Parking | **Parking Ownership** | Private |
| Roads | Permit or Paid Parking | County | Publicly Available Parking |
| FrontRunner | | Federal | State |

**Parking Time Limits**
- 1 hr
- No Time Limit
- 2 hr

For each facility and block shown in **Figure 1** above, the number of spaces was counted by parking type. **Figure 2** below provides a breakdown of the parking inventory. As the figure shows, the majority of the parking in the Downtown area is private, meaning only certain patrons or employees can park in those lots. Less than half of all parking, on-street and off-street, is available to the public. A look at the parking occupancy in the next few graphs and maps will indicate whether the parking supply is adequate for those parking in Downtown Ogden.

## Figure 2 – Downtown Ogden Parking Inventory



**Off-Street Only Breakdown**

On-Street 1,599
88% Off-Street
Off-Street 11,352

12,951 Total Spaces

5,546 (42%) Publicly Available Spaces (On- and Off-Street)

Municipal 12%
Public Available 35%
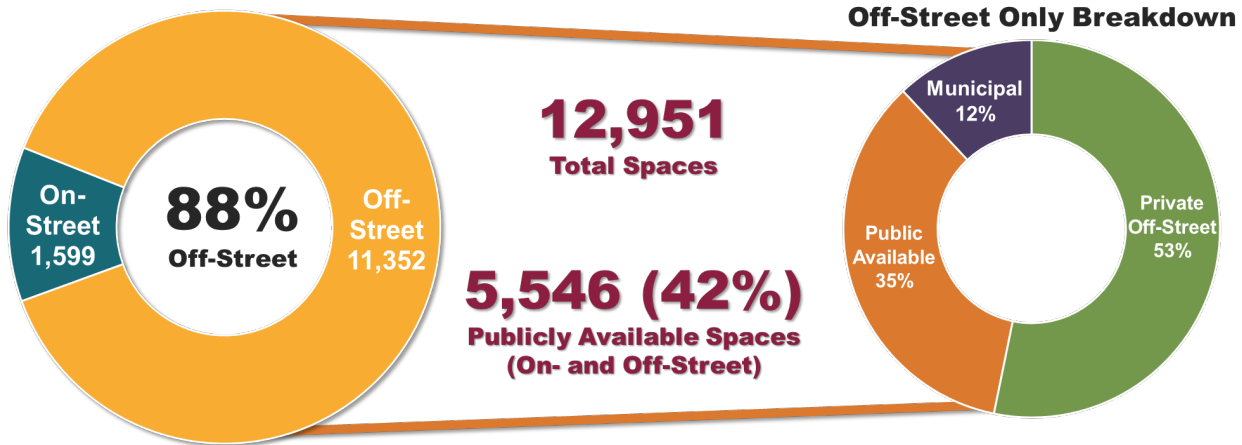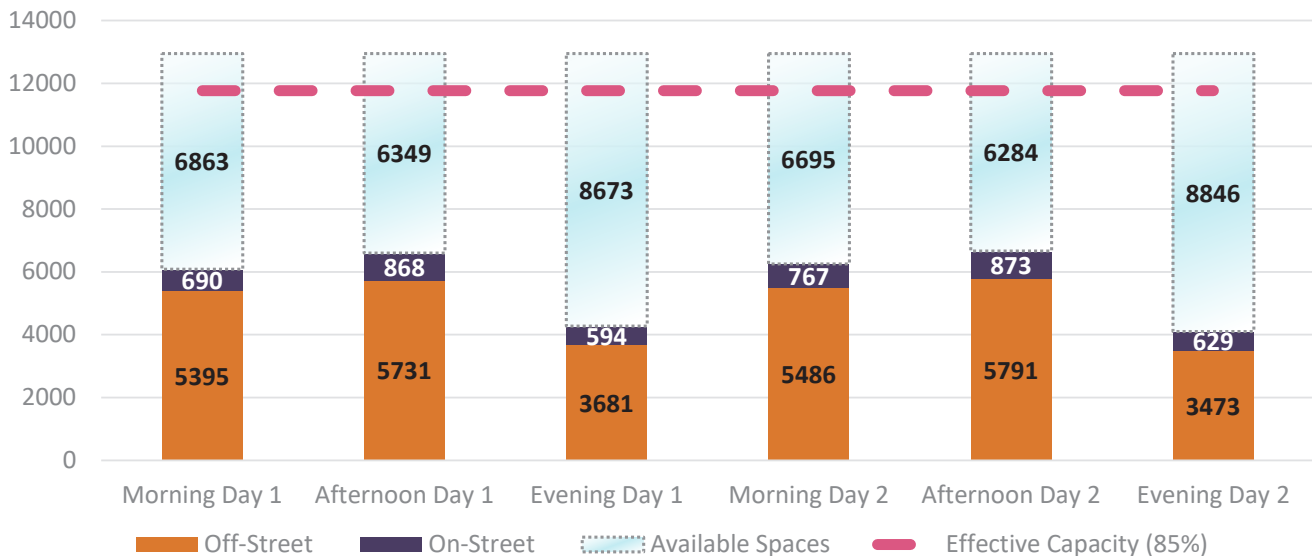Private Off-Street 53%

**Figure 3** displays the number of parked vehicles in Ogden's Downtown on-street and off-street facilities. **Figure 3** also shows the number of spaces that were observed to be available. Again, the Effective Capacity line is included as a reference that indicates when the Downtown would be experiencing reduced capabilities. As demonstrated in the graph, the number of parked vehicles is significantly lower than the Effective Capacity line, indicating that the Downtown, as a whole, is underparked.

## Figure 3 – Number of Parked Vehicles vs. Available (Unoccupied) Spaces



| | Morning Day 1 | Afternoon Day 1 | Evening Day 1 | Morning Day 2 | Afternoon Day 2 | Evening Day 2 |
|---|---|---|---|---|---|---|
| Available Spaces | 6863 | 6349 | 8673 | 6695 | 6284 | 8846 |
| On-Street | 690 | 868 | 594 | 767 | 873 | 629 |
| Off-Street | 5395 | 5731 | 3681 | 5486 | 5791 | 3473 |

Legend: Off-Street · On-Street · Available Spaces · Effective Capacity (85%)

Based on the number of vehicles parked compared to the total number of spaces, the parking occupancies for different parking types was calculated. **Figure 4** and **Figure 5** display this occupancy data in different breakdowns by parking type and time of day. The occupancies in both graphs are compared to effective capacity, where 85% capacity represents a system where users will have a difficult time finding the remaining 15% of open spaces throughout the system.

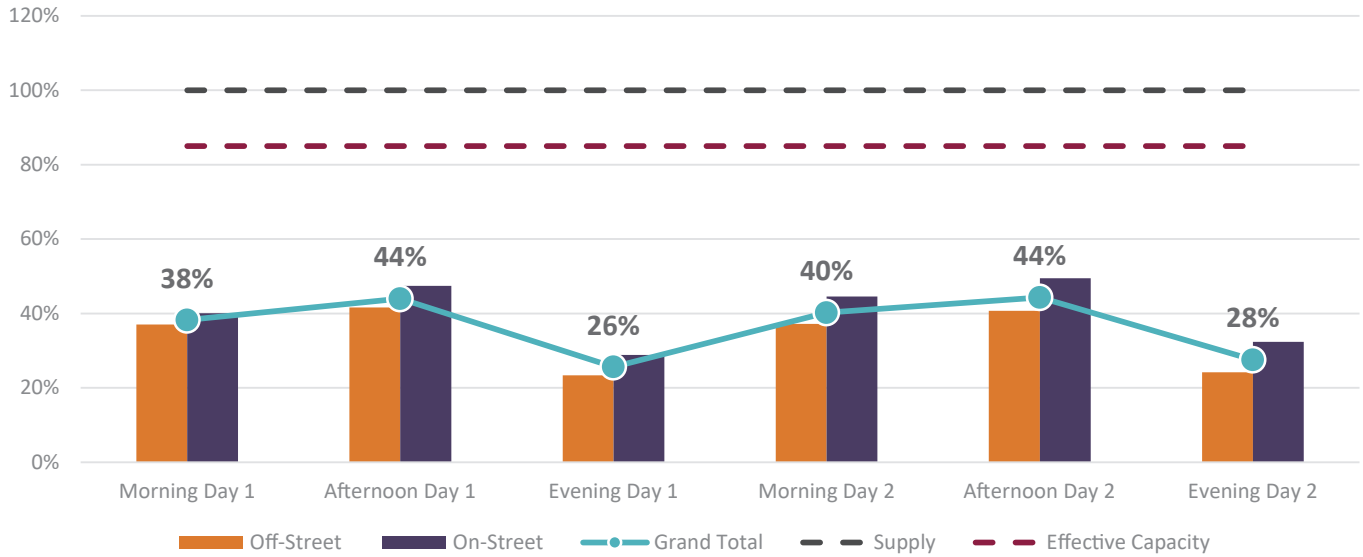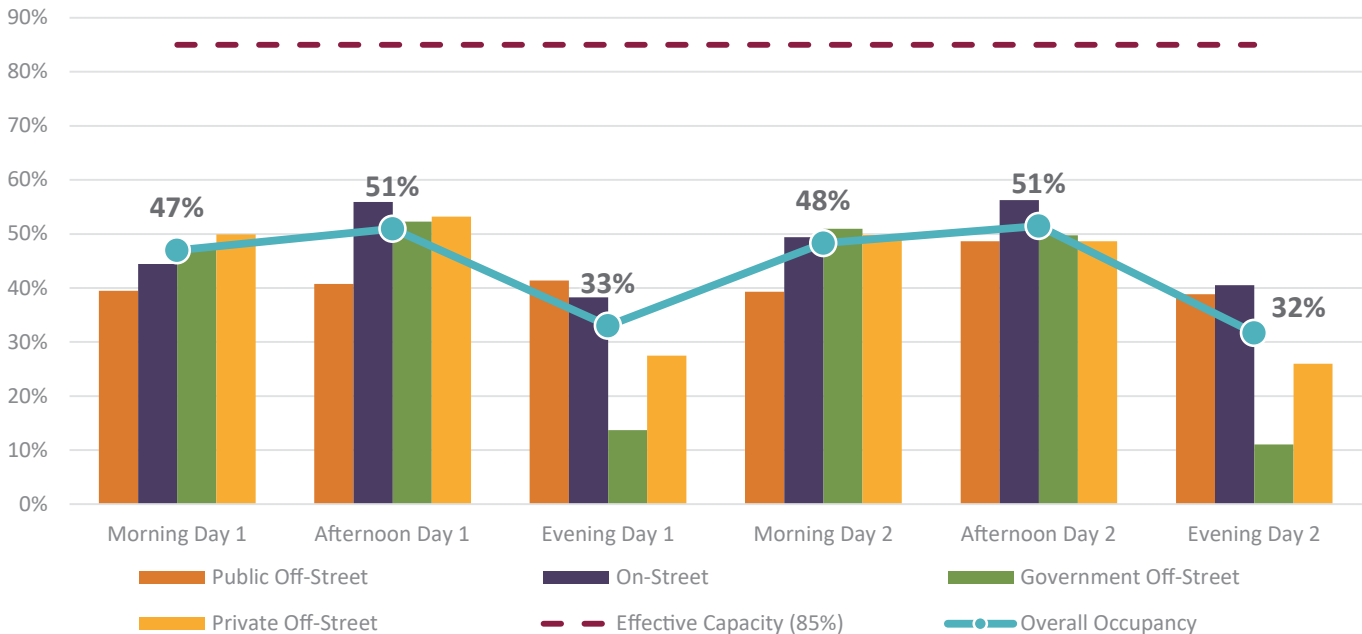## Figure 4 – Off-Street and On-Street Occupancy by Time of Day



Legend: Off-Street, On-Street, Grand Total, Supply, Effective Capacity

## Figure 5 – Occupancy by Type and Time of Day



Legend: Public Off-Street, On-Street, Government Off-Street, Private Off-Street, Effective Capacity (85%), Overall Occupancy

The graphs show that, overall, parking is available in Downtown Ogden. In fact, during the peak, which was found to be mid-day, the parking occupancy for all parking observed in the Downtown was 50%. However, this does not mean that there are no facilities or blocks where parking has reached or exceeded the effective capacity threshold. **Figure 6** illustrates the observed parking occupancy for each facility in the Downtown during the peak hour, which was afternoon of Day 2.

## Figure 6 – Peak Parking Occupancy Map
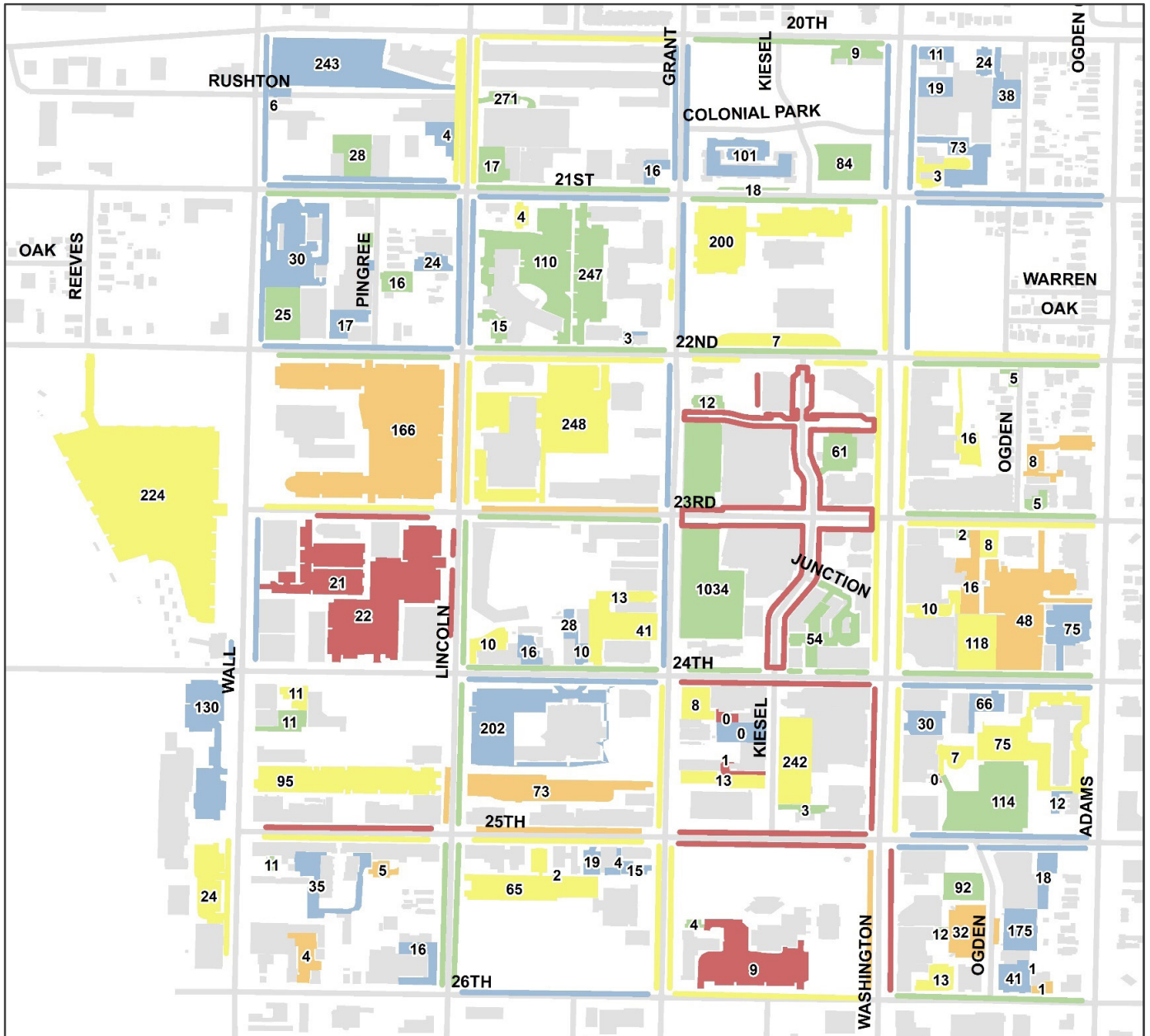


Note: The values on each facility shape represent the number of available spaces remaining

## Downtown Ogden Parking Analysis Findings

Despite the overall low occupancy in the Downtown, there are pockets of high occupancy that can result in a perceived parking problem by visitors or employees who park in those facilities. The following findings were made for the Downtown area:

- High on-street and low off-street parking are seen between 22nd and 25th and Grant and Washington. Much of the off-street parking in these blocks is private or restricted, with the exception of the Junction parking garage spanning 2250 to 24th Street along Grant. Parking management strategies can be implemented in this area to encourage users to park in the public off-street garage and/or on adjacent blocks that have lower occupancies.

- The historic commercial corridor along 25th also experiences optimal to high parking demands for both on-street and off-street parking. This is an area where parking regulations should be adjusted.

- Downtown parking facilities can absorb more demand, either from infill development or increased patronage to the Downtown. There are incentives that can encourage both types of demand; however, it must balance with the needs of employees who are already finding it difficult to find available parking.

- The two public lots north of 25th between Wall and Grant have a total of 584 spaces. However, during the peak period, the two lots have 186 spaces available between them. Furthermore, these lots allow those with an employee parking permit to park longer than the 2-hour time limit. Businesses in the area have requested approximately 600 permits for their employees for the 584 stalls. However, these permits are not all in use at the same time of day or day of the week. The current occupancy suggests that maintaining the current regulations (2-hour time limit unless there is a valid permit) is appropriate. These are two lots to watch each year, however, both in terms of occupancy and employee permit sales. The parking occupancy is optimal, however, it could quickly shift to effective capacity with both the public and employees parking there. Assessing the lots annually will allow the city to make necessary adjustments to spaces, permits, or surrounding facilities to ensure there is adequate parking for all users.

## Land Use Typology Parking Analysis

Land use typologies were chosen to be observed and evaluated against the existing parking code and national parking standards. The intention of the comparison is to modernize the parking standards for the City so that new development has right-sized parking associated with it. The land use typologies selected for this analysis included:

- **Small Commercial:** Mix of commercial land uses along a corridor. Small commercial land use typically varies in size between 1,000 and 16,000 square feet, requiring approximately 1,870 parking spaces.
- **Big Box Retail:** Box commercial site that is surrounded by parking. If there are other small land uses on the same site (i.e., gas station), they will be included as part of the site. This land use is commonly between 130,000-140,000 square feet requiring 450-890 parking spaces.
- **Urban Housing:** Housing units (e.g., apartments or condos) that are located in an urban or downtown setting. The housing can be in a standalone building or in a mixed-use building. Due to the urban setting of the housing, the likelihood of having a close proximity to transit stop or station is also high.
- **Suburban Neighborhood:** Multi-family residential, not in a mixed-use building. Often low density.
- **Affordable Housing:** Affordable housing may be located in both a suburban and urban setting. There is typically a lower parking requirement for affordable housing compared to market rate housing.
- **Transit Station:** Each transit station presents unique challenges and opportunities based on its surroundings and characteristics. The transit station typology is evaluated on type of service, ridership, surrounding land use, street network and walkability, and land constraints. The size of this typology is 1,300 monthly weekday average boardings throughout Ogden with 600 affiliated parking spaces.

**Parking inventory and parked vehicle counts were collected over:**

**1 Weekday |** Tuesday, March 17th
**1 Weekend Day |** Saturday, March 7th
**7:00 am - 7:00 pm |** Both Days

*It is important to note that the data was collected prior to government-mandated shutdowns related to COVID-19. The analysis that results from this data is pre-COVID and does not reflect the reduced parking and traffic and transit demands experienced from March 2020 through December 2020.*

## Parking Occupancy

This section of the report examines the parking occupancies observed at sites that represent the above-listed land use typologies. **Figure 7** and **Figure 8** below present the parking occupancy trends for each land use typology by weekday and weekend, respectively.

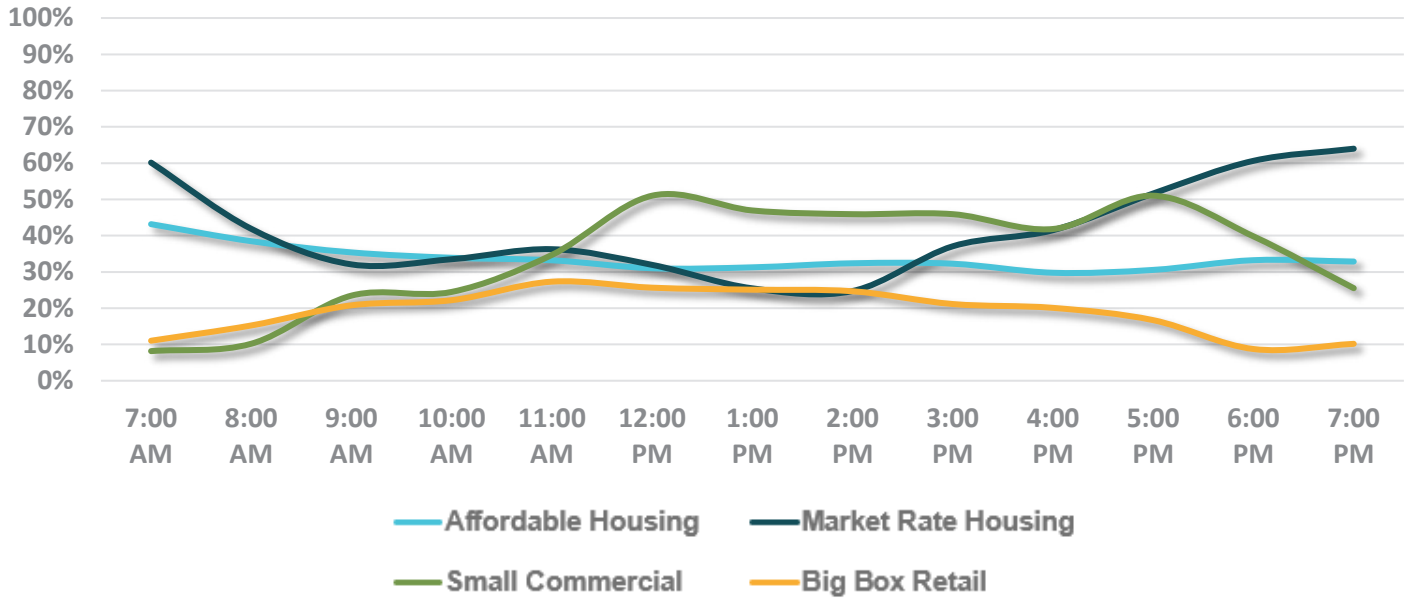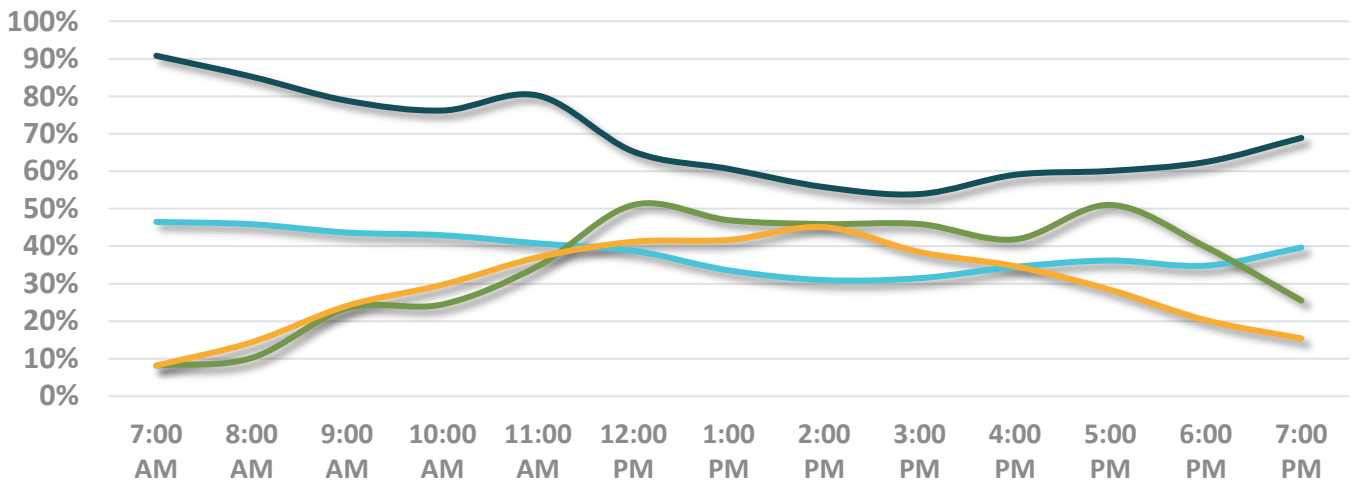**Figure 7 – Weekday Parking Occupancy by Land Use Typology**



**Figure 8 – Weekend Parking Occupancy by Land Use Typology**



The graphs show that parking occupancies for the above-listed land uses were primarily below the 85% effective capacity threshold, with the exception of market rate housing. Market rate housing follows a typical trend for that land use with higher demand in the mornings and evenings and dipping during the workday. During the peak mornings and evenings for this use, the parking occupancy is at 90%, which is acceptable for this land use. The other land uses, including affordable housing, have relatively consistent occupancies at all times.
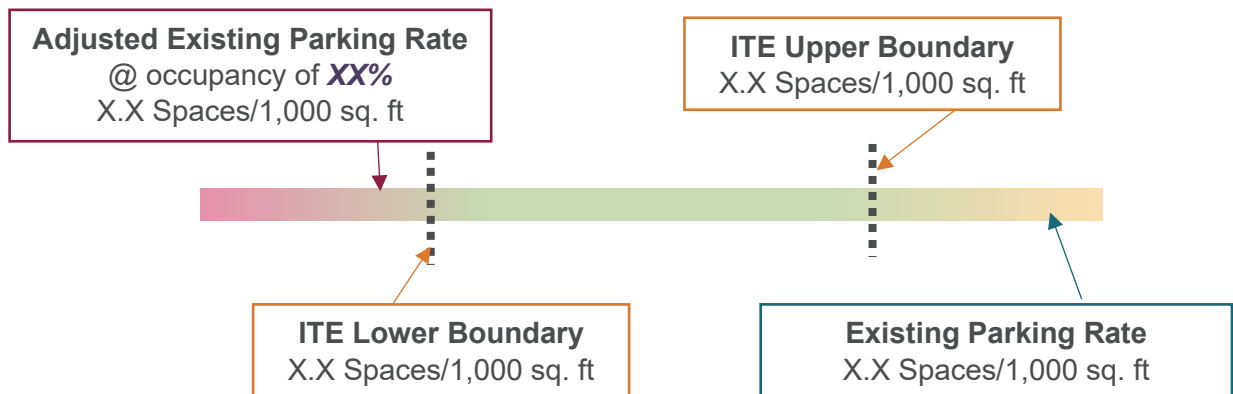
## Occupancy Data Comparison by Land Use Typology

This section compares the observed parking occupancies, as described in the previous section, to what is required in Ogden City Code (Existing Parking Requirement) and national standards as defined by the Institute of Transportation Engineers (ITE). For this comparison, the ITE Parking Generation, 5th Edition was used, as well as the Ogden City Code 15-12-3A and 15-34-4.

The following symbols are used to indicate whether the code for that land use provides adequate parking. One of the symbols will be shown for each land use to depict the performance of the land use.

| Symbol Key | | Impacts to Urban Form |
|---|---|---|
| **Balanced** | | The code is adequately providing parking. The parking system is balanced and allows for opportunity for continued growth. |
| **Overparked** | | The code requires too much parking and is resulting in parking that is not used. The urban from is vacant and properties are disconnected. The land use is not being used to its greatest economic potential. |
| **Underparked** | | The code does not require enough parking and results in spillover parking. New investments and development can be deterred because the parking availability is constrained. |

In addition, each land use will also have a bar (like the example shown below) that depicts a range from underparked (red), optimum (green), and overparked (yellow). The national (ITE) standards (upper and lower standard boundaries when available) are also shown to highlight the national optimum range for parking rates. The bar will also callout the existing parking rate per the code, so it can be visually compared to the ITE standard. Another callout along the bar will be an adjusted existing parking rate. This adjusted rate takes into account the observed occupancy and the 85% threshold. The adjusted rate reflects a rate that would provide optimum level of parking for the land uses observed.

**Adjusted Existing Parking Rate**
@ occupancy of *XX%*
X.X Spaces/1,000 sq. ft

**ITE Upper Boundary**
X.X Spaces/1,000 sq. ft

**ITE Lower Boundary**
X.X Spaces/1,000 sq. ft

**Existing Parking Rate**
X.X Spaces/1,000 sq. ft
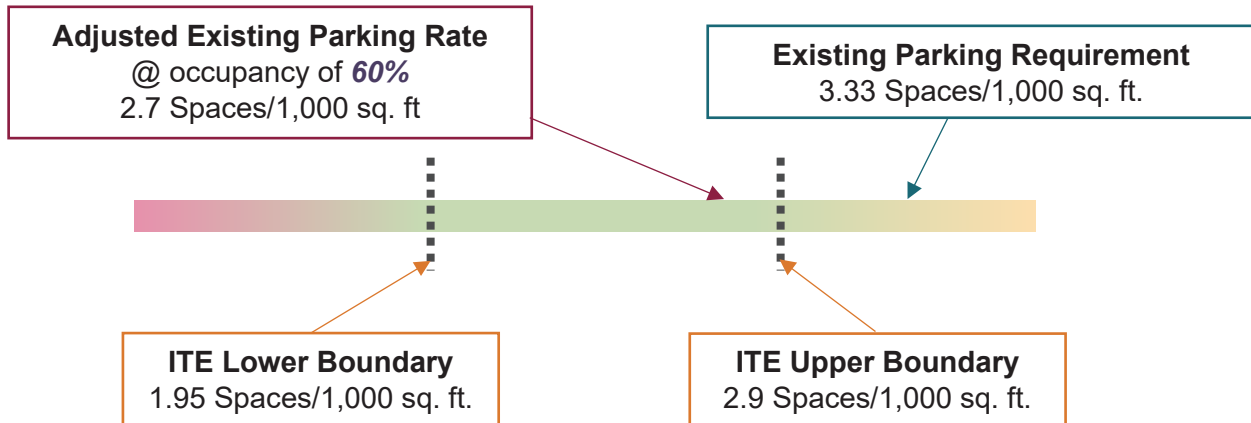
## Small Commercial



The small commercial land use typology is a variety of types and sizes of commercial, retail, office, and service land uses. There is sometimes on-street parking or a small parking lot in the front of the building and perhaps in the back as well. The sizes of the buildings vary, but they are typically within 2,000 sq.ft. to 16,000 sq.ft.

The observed parking occupancy for the small commercial land use typology saw a peak demand of 60%, showing that the parking is somewhat underutilized. When examining the existing parking requirements for this type of land use in Ogden, they were found to exceed national requirements set by ITE.

If the existing City rate was adjusted to reflect the 60% parking demand, taking into account the 85% threshold so as not to maximize parking, the resulting rate would be 2.7 spaces/1,000 sq. ft. This adjusted rate is within the boundaries of the national standard that ITE sets.

| Adjusted Existing Parking Rate @ occupancy of **60%** 2.7 Spaces/1,000 sq. ft | Existing Parking Requirement 3.33 Spaces/1,000 sq. ft. |
|---|---|

| ITE Lower Boundary 1.95 Spaces/1,000 sq. ft. | ITE Upper Boundary 2.9 Spaces/1,000 sq. ft. |
|---|---|

*The required parking rate for this land use should be reduced from 3.33 to 2.9 or lower, especially in higher-density areas like Downtown or areas within a 1-2 block distance from Union Station, so that the land uses are optimized and parking supply does not detract from the Downtown experience.*
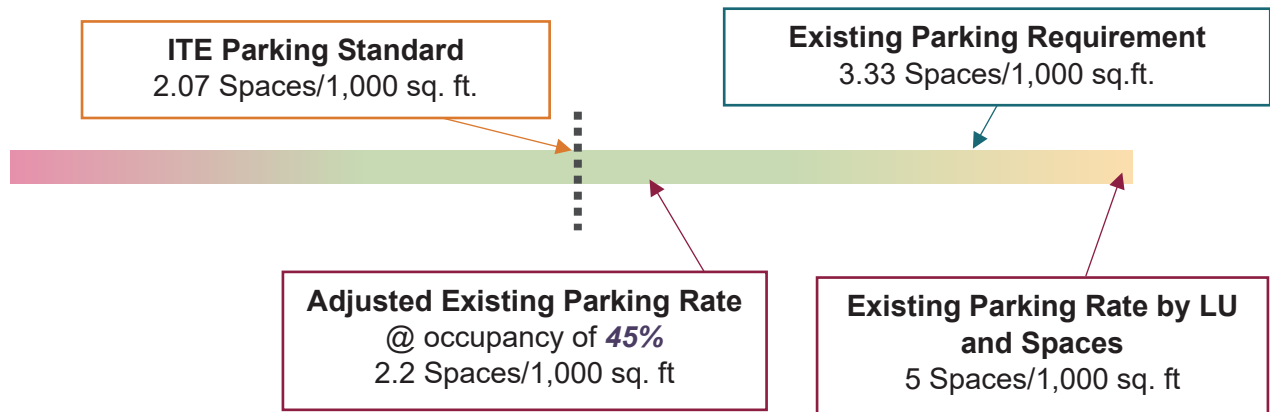
## Big Box Retail



Big box commercial retail land use typology includes large single-use retail buildings, approximately 80,000 sq.ft. or larger. This use is characterized by having a large parking lot in the front of the building.

The existing parking inventory for this land use produces a parking rate of 5 spaces per 1,000 sq.ft. which is almost two spaces over the City's current parking requirements. The observed parking demand was 45% at the peak. Together, this data indicates that big box developers are building parking in excess of what is being required.

If the existing City rate was adjusted to reflect the 45% parking demand, taking into account the 85% threshold so as not to maximize parking, the resulting rate would be 2.2 spaces/1,000 sq. ft. This rate is below the national standard that ITE sets. This measure further shows that the current parking requirement not only surpasses ITE's recommended parking ratios but results in heavily underutilized parking and an excess of spaces.

**ITE Parking Standard**
2.07 Spaces/1,000 sq. ft.

**Existing Parking Requirement**
3.33 Spaces/1,000 sq.ft.

**Adjusted Existing Parking Rate**
@ occupancy of *45%*
2.2 Spaces/1,000 sq. ft

**Existing Parking Rate by LU and Spaces**
5 Spaces/1,000 sq. ft

*The required parking rate for this land use should be adjusted and developers should be discouraged from providing excess parking unless there is valid justification, such as an understanding that the parking will be partially developed in the future and the parking will be shared among tenants.*
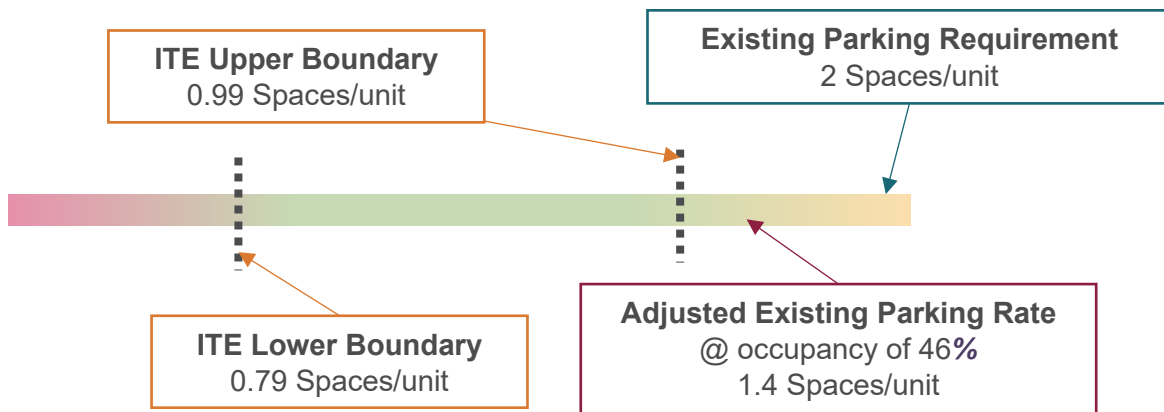
## *Affordable Housing*

Affordable housing are residential condominiums or apartments or town homes that have rents that are set below market rate values.

The observed occupancy for the affordable housing for this study was 46% at the peak, showing that the parking is underutilized. When examining the existing parking requirements for this type of land use in Ogden, they were found to exceed national requirements set by ITE.

If the existing City rate was adjusted to reflect the 46% parking demand, taking into account the 85% threshold so as not to maximize parking, the resulting rate would be 1.4 spaces/unit This adjusted rate is higher than the national standard that ITE sets; however, it reflects the utilization of this land use for the City.

**ITE Upper Boundary**
0.99 Spaces/unit

**Existing Parking Requirement**
2 Spaces/unit

**ITE Lower Boundary**
0.79 Spaces/unit

**Adjusted Existing Parking Rate**
@ occupancy of 46**%**
1.4 Spaces/unit

*The required parking rate for this land use should be reduced from 2 spaces/unit to 1.4 spaces/unit, especially in higher-density areas like Downtown or areas within a 1-2 block distance from Union Station, so that the land uses are optimized and parking supply does not detract from the neighborhood character.*
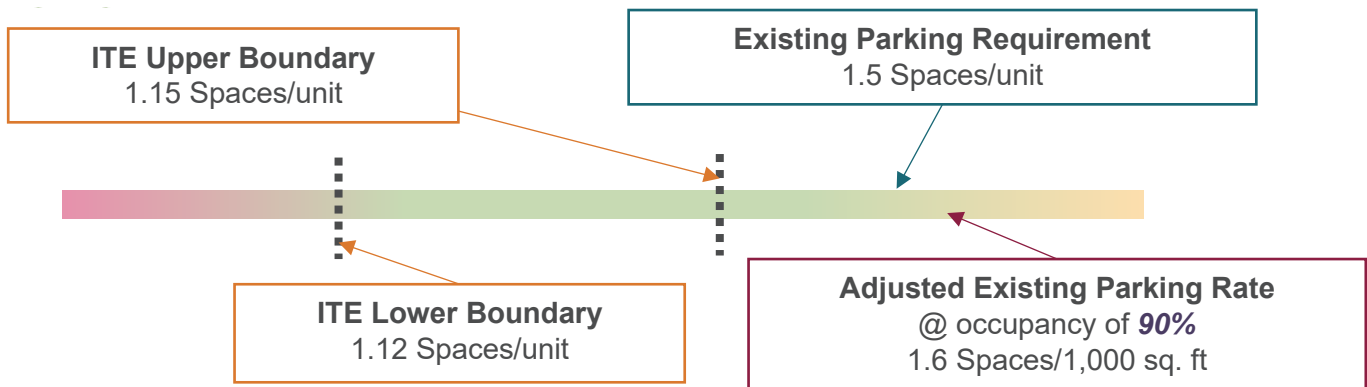
## Market Rate Housing



Market rate housing are multifamily residential condominiums or apartments or town homes that are priced at rates determined by the market. For this study, the market rate housing was in an urbanized setting.

The observed occupancy for market rate housing for this study was 90%. As discussed previously, this is an acceptable level of occupancy for residential land uses because residents are familiar with the parking on the site and will habitually park in the same location.

Based on the observed occupancy for this land use typology, the existing parking requirement is found to be balanced. If the existing City rate was adjusted to reflect the observed parking demand, the resulting rate would be 1.6 spaces/1,000 sq. ft.

**ITE Upper Boundary**
1.15 Spaces/unit

**Existing Parking Requirement**
1.5 Spaces/unit

**ITE Lower Boundary**
1.12 Spaces/unit

**Adjusted Existing Parking Rate**
@ occupancy of **90%**
1.6 Spaces/1,000 sq. ft

*The existing parking requirement for the City is found to be balanced for this land use. However, at a 90% parking occupancy at peak, the parking should be monitored closely. Small changes could result in needing to increase the rate to 1.6 spaces/1,000 sq. ft. in the future as the population grows or if new urban housing developments are constructed.*
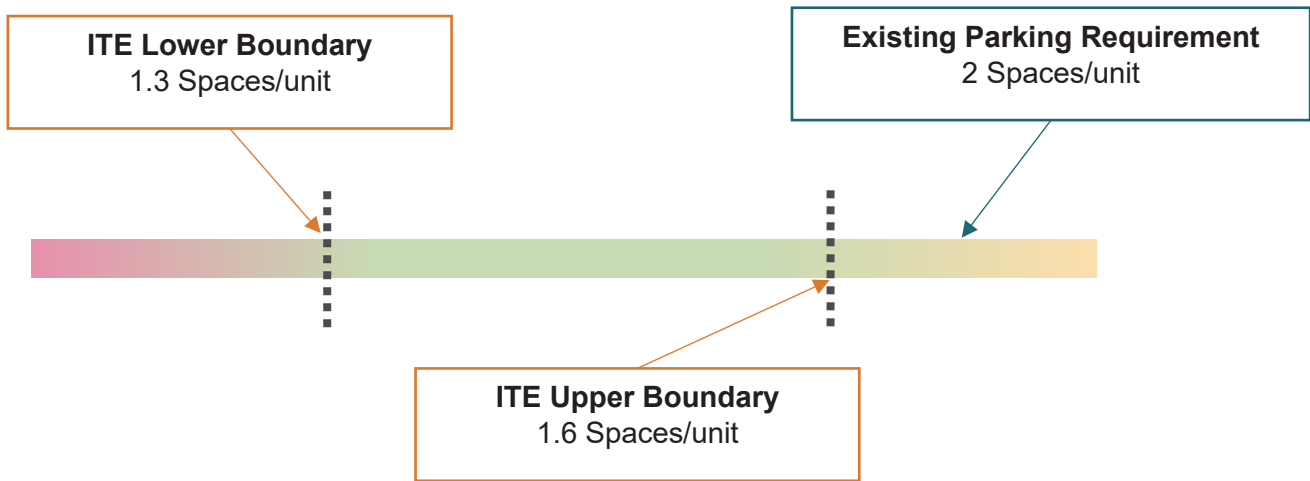
## Suburban Neighborhood

The suburban neighborhood land use typology is characterized by single-family residential housing located outside of the Downtown and urbanized areas of the city.

The observed occupancy for suburban neighborhood housing for this study was 90%. As discussed previously, this is an acceptable level of occupancy for residential land uses because residents are familiar with the parking on the site and will habitually park in the same location. The suburban neighborhood typology has an existing parking requirement of 2 spaces per unit, exceeding the ITE parking standard by 0.4 spaces per unit.

Based on the observed occupancy for this land use typology, the existing parking requirement is found to be balanced. Due to the suburban nature of the housing and the adequacy of the observed parking demand, an adjusted existing parking rate was not calculated for this land use.

**ITE Lower Boundary**
1.3 Spaces/unit

**Existing Parking Requirement**
2 Spaces/unit

**ITE Upper Boundary**
1.6 Spaces/unit

*The existing parking requirement for the City is found to be balanced for this land use and adjustments to the parking code is not recommended.*
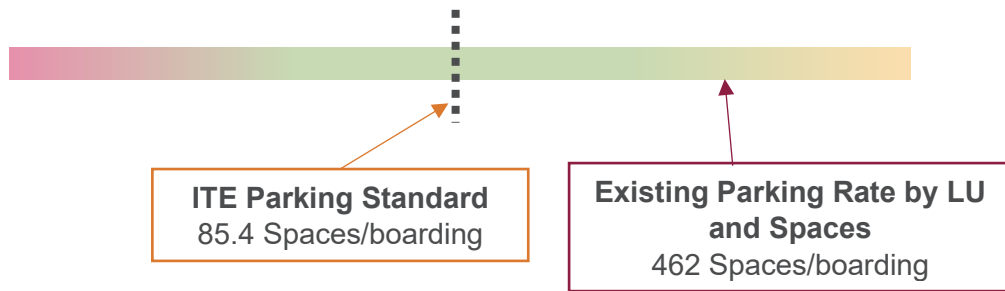
## Transit Station



The transit station land use typology is characterized by a large transit stop where multiple lines and types of transit (light rail, bus) converge. Ogden's Intermodal Transit Center, north of Union Station, located on the west side of Downtown Ogden was the observed site. The transit station is served by UTA's FrontRunner commuter rail and bus services. It is adjacent to the historic 25th Street.

The peak parking demand at the Intermodal Transit Center was observed to be 70%, which is within the optimal range. Unlike other land uses observed, transit stations often don't have a building size or number of units to evaluate against. Therefore, the number of spaces per boardings was used. Because this land use is considered to be balanced, an adjusted parking rate was not calculated.

**ITE Parking Standard**
85.4 Spaces/boarding

**Existing Parking Rate by LU and Spaces**
462 Spaces/boarding

*The existing City parking requirement for transit stations is found to be adequate and no recommended changes are suggested.*

## Ogden City Ordinances

Other policies within the Code impact the amount of parking that is required by a developer. On a case-by-case basis, agreements are made between property owners to share parking. Developers are also allowed modifications to what is required by the Code in the Downtown area. A summary of both of these policies are provided below.

The following existing ordinances support the parking initiatives of Ogden City.

- **Time Limits (10-5-4):** On-street parking in Downtown Ogden is regulated by one-hour and two-hour time limits. The Code (10-5-4) provides flexibility by allowing the City to adjust the location and length of these time limits so long as the messaging on the signs is clear. Enforcement hours of these regulations is 8am to 6pm Mondays through Saturday.

- **Overlapping and Shared Parking Allowances (15-12-7):** Shared parking in a commercial or manufacturing zone (where land uses are not on the same lot) is allowed if it can be established the uses characteristically result in peak accumulations of parked vehicles at different hours, days, or seasons. The properties must be within a 500-feet distance.

- **Parking Reductions (15-12-7):** General parking reductions are allowed throughout the city if the uses have mixed peak accumulations of parked vehicles at different hours, days, or seasons, or if there are ten individual businesses on the lot. Reductions are also allowed on a case-by-case basis in the CBD.

- **General Development Requirements (15-39-4):** Buildings in a mixed-use design need to be clustered so that they are easily accessible for pedestrians and to shared parking areas. Clustering occurs by having the buildings tightly grouped along the street frontage or pedestrian access.

- **Parking Permits (10-9-8 through 10-9-13):** Parking permits are provided for residential guests, business owners, and employees. A valid permit is required to park in any municipal building parking facility; however, other employees can apply for a permit as well. Permits are valid for one year, with the exception of the temporary visitor permit, and cannot be transferred between vehicles. The annual permit is $20 and the renewal price is $10. Guest permits are $5 (one-day permit), $10 (two-day permit), and $15 (temporary visitor permit). Valid permit holders are not limited to the posted parking regulations.

### Key Takeaways

- Adjust parking rates to right-size parking:
  - Small commercial: adjust from 3.33 spaces/1,000 sq. ft. to 2-2.7 spaces/1,000 sq. ft.
  - Big box retail: adjust from 3.33 spaces/1,000 sq. ft. to 2-2.5 spaces/1,000 sq. ft.
  - Affordable housing: adjust from 2 spaces/unit to 1-1.5 spaces/unit
  - Market rate housing: maintain current rate of 1.5 spaces/unit
  - Suburban neighborhood: maintain current rate of 2 spaces/unit
  - Transit station: maintain current rate
- Downtown: create separate set of modifications in the code that offer clear reductions for shared parking, proximity to transit, inclusion of access to multimodal connectivity (bike lanes, bike parking, sidewalks, lighting, bike share, etc.), and for employers who offer Transportation Demand Management programs for their employees (discussed in the next section).
- Expand the shared parking ordinance to increase the walking distance to 1,000-1,300 feet to allow developers to utilize existing underutilized parking rather than building more private parking.

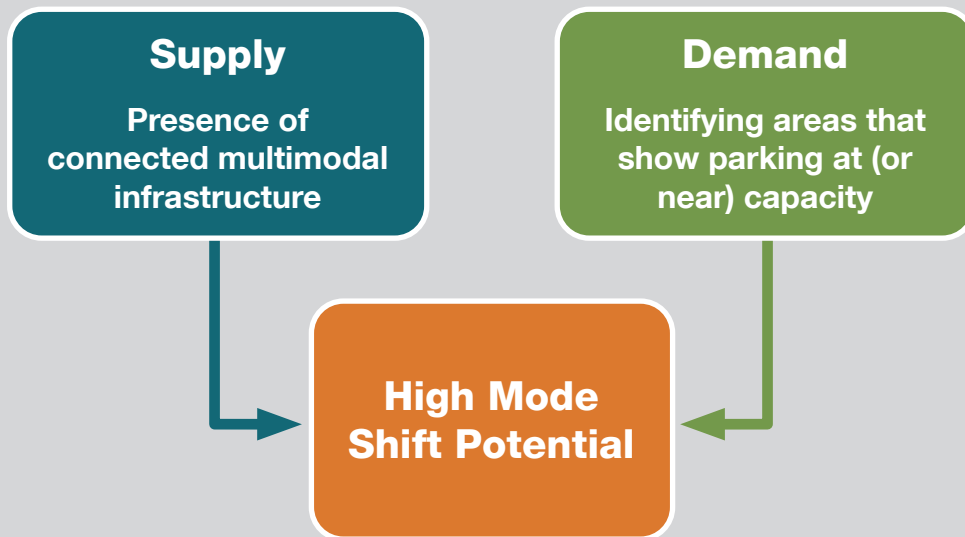# 4. Transportation Demand Management

# 4. Transportation Demand Management

Transportation Demand Management (TDM) strategies provide people with a variety of mobility options rather than driving alone in a personal vehicle. The intention behind TDM is to reduce vehicle miles traveled (VMT) and congestion, as well as gain environmental, conservation, and sustainability benefits. These strategies often do not require large infrastructure investments.

TDM also includes a "park once" mentality. This means you drive to the Downtown area, park in a single location, and are then able to visit many locations in a single visit. You don't get back in your car and re-park to visit a store, then a restaurant, then run an errand. There are sidewalks, bikes, scooters, or other means that help you move in the area that don't require a personal vehicle.

TDM strategies are most successful in areas where new mobility technologies can be more strategically leveraged and where parking supply management can be successfully modernized.

**Components for Influencing Mode Shift**

**Supply**

Presence of connected multimodal infrastructure

**Demand**

Identifying areas that show parking at (or near) capacity

**High Mode Shift Potential**

Example of TDM strategies include the following. Please note, these are not necessarily recommended for this parking study, but are included here to provide examples of what is included and meant by TDM.

- Guaranteed Ride Home
- Shuttles
- Wayfinding and Branding
- Teleworking
- Remote school options
- Compressed or Flex Work Schedules
- Restricted Parking
- Bike/Walk Subsidy
- Transit Subsidy

- Carpool Incentives
- Parking Fees
- In-Kind Incentives
- Bike/Pedestrian Infrastructure
- Traffic Calming
- Passenger Loading Areas
- Alternative Mode Visibility
- Land Use Changes

## TDM Potential and Parking Occupancy

As part of the study, an analysis was conducted comparing the density of land uses and access to alternative transportation modes to parking occupancy. As shown previously, these factors are instrumental in encouraging a shift in behavior from driving alone to using alternative transportation options.

As shown below in **Figure 9**, the Ogden multi-use core has parking facilities that have reached or exceed the Effective Capacity. The Downtown falls within the top demand tier and TDM strategies are likely to have a positive effect in this area. The Downtown tier was broken-down further to identify key locations where TDM strategies can relieve parking demand or optimize the use of parking assets.

Downtown Ogden contains higher density commercial and residential use and low parking capacity. Areas that experience high parking demand and have high land use density would experience an impact from the implementation of TDM strategies. These locations are shown in **Figure 9**. An added benefit is that these areas are already near a transit station, bike network, and sidewalks. These amenities can be leveraged to encourage travel that is not the use of a personal vehicle.

### Figure 9 – Ogden TDM Mode Shift Potential and Parking Occupancy at 12pm Peak
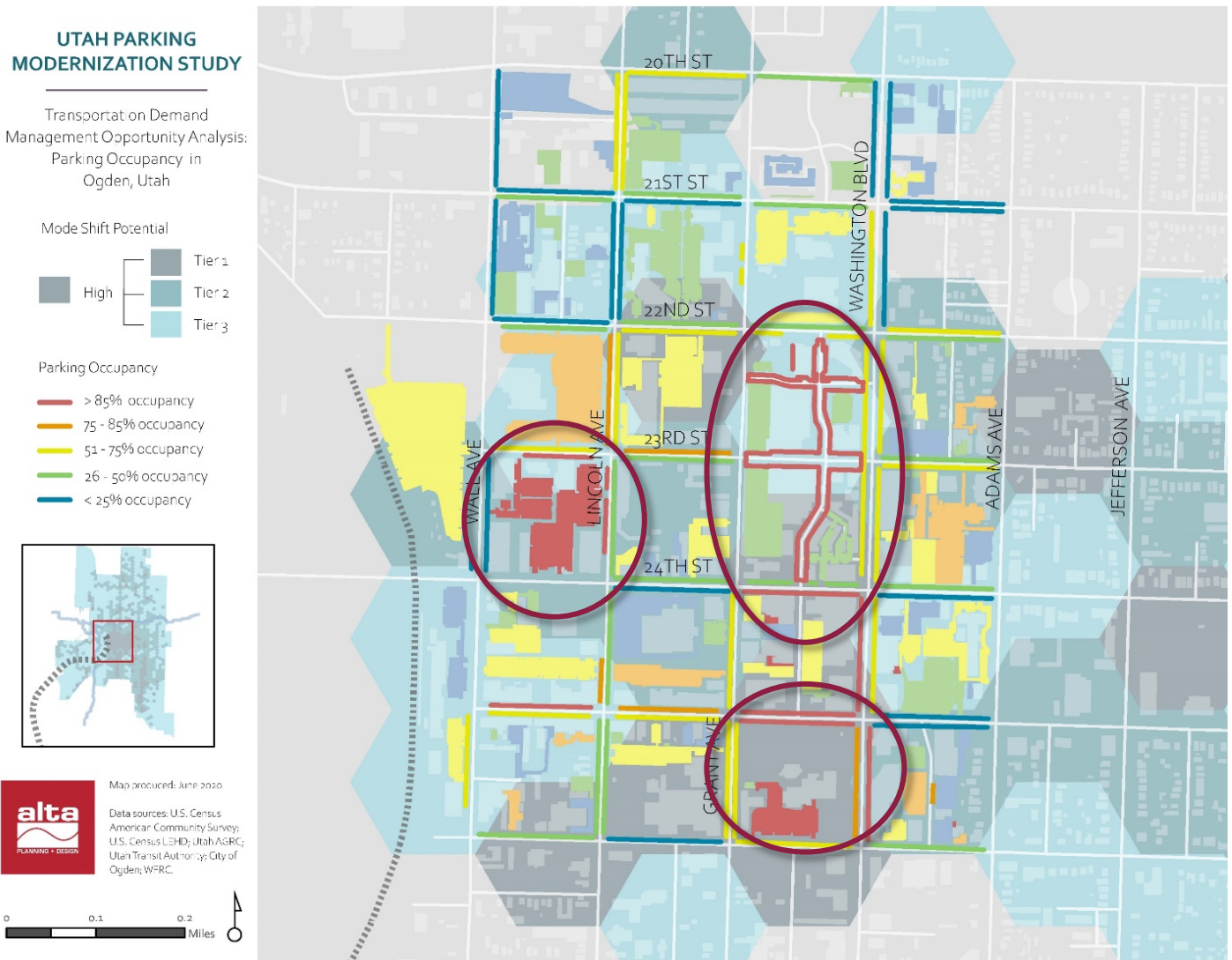
# 5. Peer Roundtable

# 5. Peer Roundtable

As part of this project, best parking management practices were identified through discussions with peer cities. Six peer cities were selected based on what practices they could share that would be applicable to Ogden and the project partners. Peer cities were selected with robust and active parking programs, are facing similar challenges, have similar development environments, and are in similar stages in developing a parking program as many communities are across the Wasatch Front region.

Initial research provided snapshots of each community, including data about:

- On- and off-street parking inventory
- Enforcement practices
- Parking rates, meters, and mobile apps
- Permit programs
- Ordinances

Representatives from Park City (UT), Salt Lake City (UT), Boise (ID), Beaverton (OR), and Gresham (OR) participated in a virtual roundtable.

- **Boise:** The Capital City Development Corporation (CCDC) organization is responsible for Boise's urban renewal, which includes eliminating blight, stimulating economic development, and managing parking. Boise has made a commitment to be the premier place to live in the Treasure Valley, and CCDC takes that commitment seriously. Participants included Max Clark and Matt Edmond of Boise CCDC.

- **Salt Lake City:** Parking for Salt Lake City is split into two major pieces: transportation, which is responsible for planning and studies, and compliance, which handles parking enforcement. The participant included Jorge Chamorro of Salt Lake City.

- **Beaverton:** They do not currently have much enforcement and the role of parking manager is new, and that position sits within the community development department, which works closely with existing enforcement. The densest area of town is the downtown core with an occupancy rate around 85%, and there is a plan to build a new parking garage adjacent to a regional theatre. There are no substantive parking regulations outside of downtown. The participant was Molly Rabinovitz of Beaverton.

- **Gresham:** The City has never had parking enforcement due to limited resources and the lack of political will to create a paid parking program. They are not at the point of demand to require a formal parking program, but occupancy is telling them it is time to start planning for one. Gresham is experiencing an influx of new development in the downtown core and they are approaching a 75% occupancy tipping point that will require them to implement time limits. Participants included Katherine Kelly and Jay Higgins of Gresham.

## Key Topics

The follow sections summarize the discussion around key topic areas as determined by the Steering Committee.

### Development and Lender Experiences

The following is a summary of responses from each peer participant regarding parking strategies and actions to support new developments and businesses.

- Beaverton has been focusing on how to utilize existing inventory. Beaverton can appear to be "one big parking lot" but most parking is privately owned, and shared parking options are desirable. They are also looking at parking code for Downtown to see what should be revised. A Parking Action Plan is scheduled but has been halted by COVID-19, and the City is reviewing strategies and regulations for existing supply before adding new facilities. The developer community is very active, collaborative, and keen to work on shared parking amongst themselves, existing property owners, and the City.

  - Beaverton's developer community has enthusiastically embraced parking because they see that they can build more densely if less parking is required. Structured parking in Beaverton is expensive because their water table is only four feet down and the price is astronomical for underground parking. People want to build in Beaverton, proven by the response they receive for projects, and they seem to have effective development standards in place that people are willing to build to.

- Gresham's priority is curbside management and making sure a holistic approach is taken so that everything that happens at the curb is integrated with parking practices and policy. This is a new paradigm for how they talk and think about parking for the City and they are committed to taking a broader perspective versus a conventional perspective that focuses only on percentages and code. Gresham is working hard to not just look at demand and need, but also to see how parking impacts and fits into the bigger picture for the City and the future.

- Boise has three potential garage projects in the works and there is one developer currently building with no parking included. Boise has a difficult time with transit—there are high property values in the area and people commute in cars. With no dedicated funding source for transit, Boise receives only 20-25% of transit funding compared to peer cities, and there are not a lot of alternatives to driving.

### Paid Parking

The following is a summary of the discussion focused on paid parking obstacles and opportunities.

- Boise City Council and the CCDC Board have invested in making Boise the most-desired location to live in the Treasure Valley and that includes having paid parking. Newcomers generally arrive from areas that also have paid parking, so it isn't a surprise or problem for them. There is a first hour free program, and they were also considering adjusting rates across all garages pre-COVID-19.

- Boise is not aware of any neighboring communities charging for parking as a result of Boise charging for parking, but there is enforcement in some areas. Some communities are also considering structured parking as an incentive to build new housing and office buildings.

- Beaverton has not had paid parking since the 1980s, so people do not remember ever having to pay for parking. Paid parking is a topic of conversation as Downtown reaches an 85% occupancy threshold. Beaverton is still a car-centric area but there is a desire to have more centralized parking and fewer parking lots. Beaverton is only seven miles from Portland, and the concept of paid parking is not new, but it is new to consider it for the Downtown core. They receive many transplants from California who are used to paid parking.

- Salt Lake City has enforcement of limited parking areas and is always looking for ways to encourage visits to Downtown. In the past they have explored validation programs specifically. Validation programs have the potential to only benefit a few and should be carefully considered, implemented, and assessed.

## Shared Parking

- Beaverton recommended having a land use process for shared parking where property owners can provide documents about their parking and show how hours and supply offset to serve both purposes. The City has also teamed up with the Downtown association for a voluntary (no compensation) after hours program. Through this program, a daytime-use business like a bank can share parking with an evening-use business such as a restaurant. Pre-COVID-19 they had gained around 30 spaces with a potential of about 60 more. The City provided signage to the participants that included their desired branding elements, program hours, and legal terms. There is not as much private parking in the busiest area of Downtown, so they are still figuring out ways to utilize City-owned lots. The group agreed that shared-use solutions can look different for resort towns.

## Curb Space / Micromobility / TNCs

Following the development discussion, the group turned to the topic of managing curb space and the presence of micromobility and transportation network companies (TNCs) in their communities.

- Beaverton does not currently have micromobility; they are wary of it arriving and are staying aware of trends and the experiences of others. They currently have more curb space in the right-of-way and less sidewalk space with no immediate pressing demands for curb lane management strategies. Their main concern is safety around the curb space.

- Gresham is thinking of how to change the conversation with elected officials and the community about what curb space means and expanding the view to consider what micromobility impacts could be. These conversations were starting pre-COVID-19, and they have also been closely observing the impacts these factors have had on Portland.

- Boise has invested heavily in creating a safe bicycle environment despite the auto-centric culture. When scooters arrived in 2018, they reduced the bikeshare numbers considerably. The City manages the scooters—used mainly between Downtown and the university—and have done an effective job. There were initially some challenges with vandalism and scooter speed, and numbers recede during the winter. Use has also declined because Downtown Boise is empty due to COVID-19.

- Salt Lake City's Council is focused on micromobility safety and curb use. They have a base ordinance that allows the City to enter into agreements with companies and dynamically adjust the terms of agreement as needed. This helps them be responsive to micromobility trends and changes specifically. One sticking point that has come to light is that the fees to cover the cost of the City managing the micromobility and curb lane programs needs to be figured out and included in the policies.

The group agreed that micromobility solutions are challenging because the infrastructure is hard to define. Cities value safety but don't want the technologies to become obsolete and even then the microtransit may not be the issue, it may be the vehicles operating with them simultaneously.

## Community Impact

The last moments of the peer city roundtable were open for participants to share decisions and projects that have been especially impactful to their community.

- Beaverton shared that around six years ago, the City created their Development Division to work closely with economic development agencies in the community. This successful partnership has allowed the City and those agencies to move many projects forward and has put Beaverton on the map (instead of just being Portland-adjacent). Their Restaurant Row is an example of their success and has become a destination district. People are taking notice and moving from or expanding into Beaverton from Portland to be a part of the scene, all because of the economic and social benefit of the successful partnership between the City and the economic development community.

- Gresham is especially proud of their Rockwood District, their most diverse district with over 70 languages spoken. Rockwood is in the heart of a transit center, and development in partnership with that diversity is critical. They are looking at potential micromobility access points to enhance the district while keeping its culture.

- Boise shared that biting the bullet and automating their parking system was hard but worth it. The decision to automate is providing big cost savings on labor and was worth the $2 million investment. They were concerned about losing some of the friendly feel of Downtown, but they are approximately seven years into the change, and everything is working well and they're able to move people in and out of parking much faster.

- Salt Lake City is proud of their recent enforcement approach transition. They shifted from being revenue-focused to courtesy-focused to enhance user experience. Their goal is to instill a different mentality about parking in both the staff and the community.

### Key Takeaways

- Build a strong and open relationship with developers. Include their perspective in larger projects and major changes, such as revision of the codes.

- Implement paid parking only when the data dictates the need for change with consistently high parking demands. Before making the change, communicate the intentions with the public. Know their preferences and concerns and discuss them. It may be beneficial to offer incentive programs at first, such as a first hour free program.

- Include a standard shared parking procedure as part of land use processes for property owners.

- Micromobility solutions are challenging because the infrastructure is hard to define. Cities value safety but don't want the technologies to become obsolete and even then, the microtransit may not be the issue, it may be the vehicles operating with them simultaneously.

# 6. Lessons for Developers

# 6. Lessons from Developers

After hearing from the peer cities, the Steering Committee met with a developer, active in both the region and other parts of the country, to have a more in-depth discussion from the developer perspective.

The biggest takeaway from the developer discussion is the idea that parking is always a moving target and it takes continuous effort to make sure it is being optimized for a community.

Developers face two critical considerations when making decisions: 1) affordability and 2) marketability.

Parking is a cost for developers, and it is a constant balance between providing enough parking for the intended tenant while also not increasing the cost of the project. Costs vary by type of parking provided, and costs in the Wasatch Front Region are reflected below:
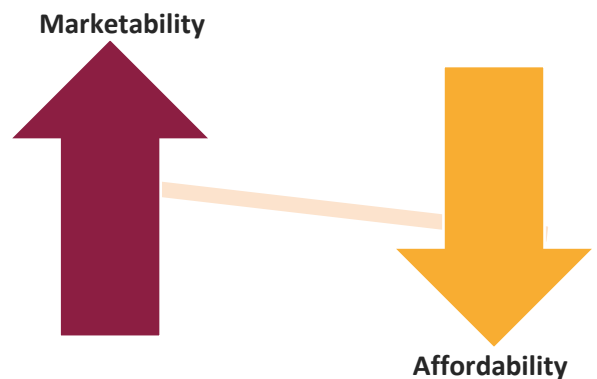
- Surface Lot - $12,000-$15,000 per space
- Structure - $15,000-$30,000 per stall
- Underground - $40,000 per stall

Each space added to a project directly impacts the cost of rent. For instance, a surface stall equates to an additional $75 per month to cover the cost of that parking stall. Furthermore, developments in more urbanized areas are more expensive than in suburban or rural areas, generally. Having additional costs for parking decreases opportunities for affordability.

Developers will adhere to the requirements put forth in a municipality's code. However, sometimes these codes do not reflect the impacts of a connected transportation network. Developers determine the right balance for parking in their projects. Finding the ideal parking ratio while providing adequate parking is a challenge for each project. Many developers will studiously and repeatedly perform occupancy counts on their properties to determine the appropriate ratio based on type of development, development setting, market, size, and proximity to transit. A typical break-even point for parking is 80% occupancy, which generally aligns with the optimal parking occupancy thresholds described in the Parking Study Performance Metrics section of this report. This data can be used to help justify a deviation from a municipal parking requirement and to help plan accordingly for the next development.

The second main consideration for developers is marketability. There needs to be enough parking provided to support the leasing of space. Developers cannot lease apartments or commercial/office space if there are not enough parking spaces for tenants. However, as discussed, the more parking spaces provided, the greater the impacts to the cost of the project, and therefore rents. In conclusion, anything that encourages marketability (more parking spaces for tenants) discourages affordability (adding more spaces increases the cost of rent).
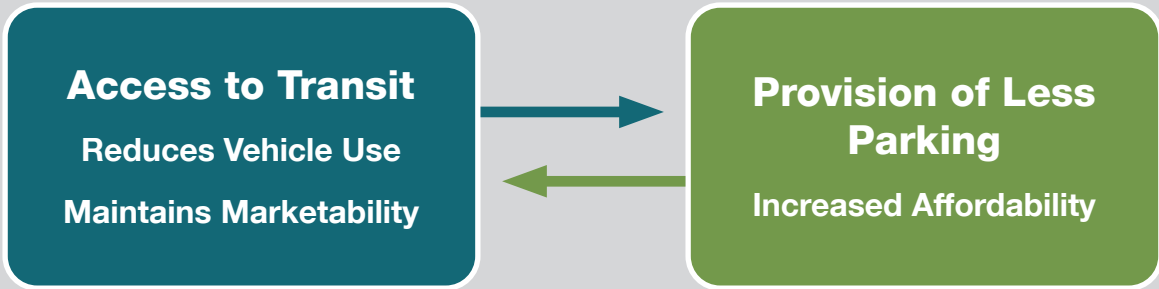
Developers see changing mobility trends from personal vehicles to multimodal opportunities. According to AAA data, the average individual spends approximately $900 per month to own an average, reliable, fuel-driven car. This includes the cost of gas, maintenance, registration, and insurance. Over the years, there has been a trend of people owning fewer cars. The reduced ownership of cars impacts the need to provide more parking for developments.

**Marketability**

**Affordability**

This trend is most prevalent in urban areas where fewer people rely on and own a personal vehicle. In an urbanized setting, a ratio of one car per three apartment units is typical for the developer. If the apartment building is in close proximity to transit (within a one-to-two-block walking distance), then the ratio is 1.2 cars per unit. Residents will let go of their second vehicle if they have easy access to transit. In a suburban setting, the ratio is 1.1 to 1.2 cars per apartment unit depending on the unit mix.

Access to transit is a major factor in balancing the marketability and affordability concerns. Having access to transit, as stated, can encourage renters to let go of one of their vehicles. This means that the next apartment development can plan to provide less parking per unit while still being able to lease their apartments. Less parking means more affordable rents.

**Access to Transit**

Reduces Vehicle Use

Maintains Marketability

**Provision of Less Parking**

Increased Affordability

An important takeaway is that developers should be included in conversations regarding parking requirements and incentives. Since each community is different, there is no one simple solution for meeting developer needs and community needs. Open and frequent conversations to build strong relationships with the development community is key to successful growth that aligns with the community's plans and goals.

# 7. Recommendations, Data Collection, and Implementation

# 7. Recommendations, Data Collection, and Implementation

The final sections of the report are divided into the following topics.

### Recommended Strategies

Description of each strategy along with benefits, challenges, steps for continued implementation. and identification of complementary strategies

### Data Collection – Methods and Metrics

Identifies data that should be collected, why it should be collected, how to use each of the data metrics, and alternative methods for collecting data

### Implementation Timeline

Matrix that indicates when strategies should be initiated and frequency of monitoring the strategy to initiate the next implementation step

The recommended strategies for Ogden City are broken into three parking management strategy buckets, as shown below, and are presented in this order in this section.

## Practices and Policies

- Right-Size Parking Requirements
- Efficient Enforcement Practices
- Manage Transit Station Parking
- Proactive Curb Lane Management
- Data-Based Decision-Making
- Develop an Annual Report

## Manage Parking Assets

- Flexible Shared Parking
- Repurpose Underutilized Parking
- Enhance Parking Permit Program
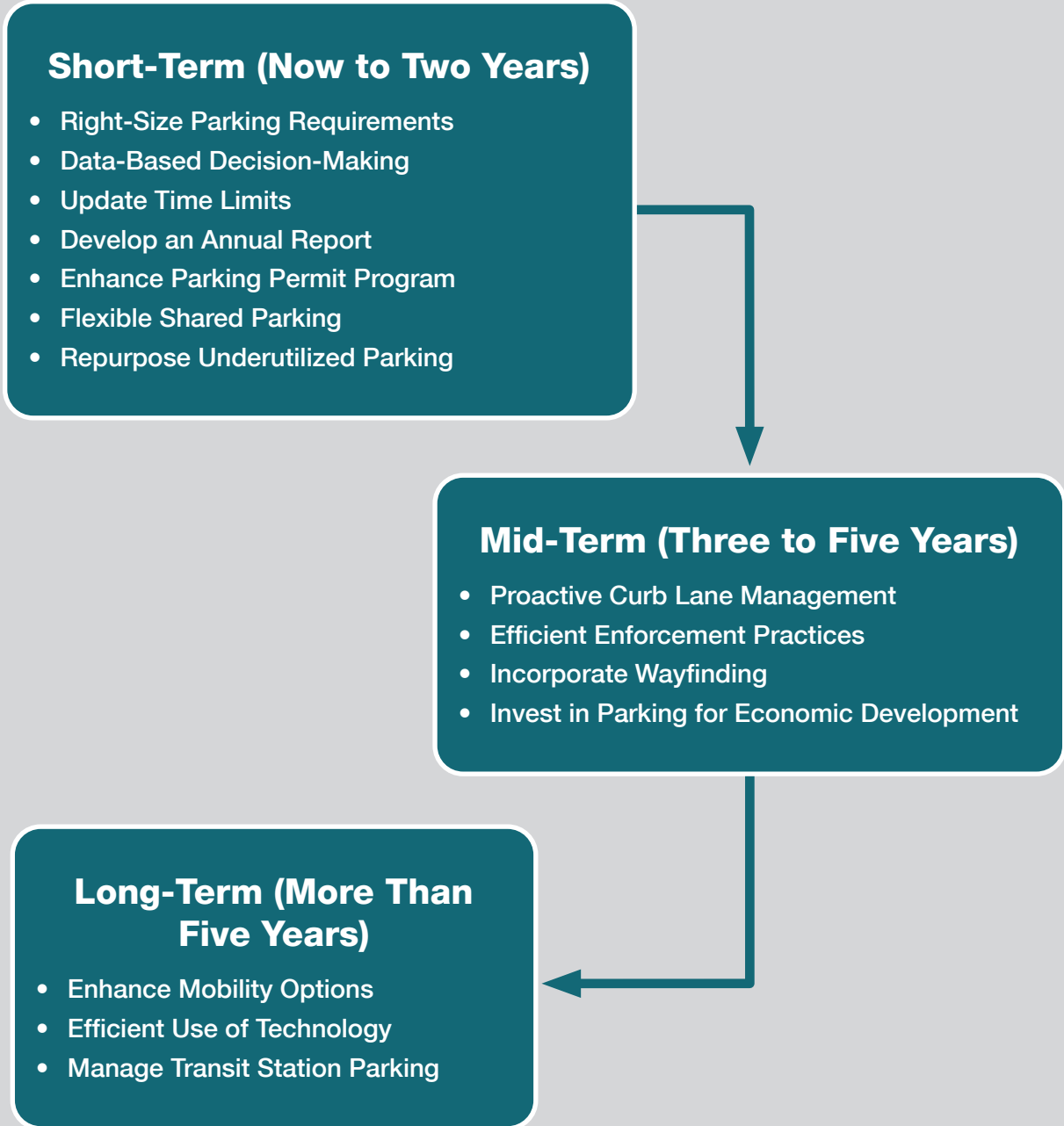- Invest in Parking for Economic Development

## Manage Travel Behavior

- Update Time Limits
- Incorporate Wayfinding
- Efficient Use of Technology
- Enhance and Leverage Mobility Options

The intention is to group similar recommendations based on how they manage parking. However, it is also important to understand the implementation priority of each recommended strategy. The initial implementation of each strategy is presented below. However, the Implementation Timeline that concludes the report indicates the frequency of monitoring for continued implementation. The specific timing of continued implementation for each strategy is contingent upon the year-over-year data collection and analysis. The data will help drive implementation decisions and timing. It is also important to note that once initiated, each strategy will continue to evolve into the next planning horizon and beyond.

## Short-Term (Now to Two Years)

- Right-Size Parking Requirements
- Data-Based Decision-Making
- Update Time Limits
- Develop an Annual Report
- Enhance Parking Permit Program
- Flexible Shared Parking
- Repurpose Underutilized Parking

## Mid-Term (Three to Five Years)

- Proactive Curb Lane Management
- Efficient Enforcement Practices
- Incorporate Wayfinding
- Invest in Parking for Economic Development

## Long-Term (More Than Five Years)

- Enhance Mobility Options
- Efficient Use of Technology
- Manage Transit Station Parking

# 8. Recommended Strategies

# 8. Recommended Strategies

The following section discusses each recommended strategy for Ogden City. The strategies are organized by bucket type. Later in the document, the strategies will be organized by implementation priority.

For each strategy, a description is provided, along with benefits, challenges, and specific implementation steps for the City. The implementation steps are presented as guidance for the City for long-term continuation of that recommended strategy. Moving to the next implementation step for each strategy is contingent upon parking system data. Details on what data should be collected and how to collect it are described in the section following this one.

## Strategies for Practices and Policies

This subsection describes recommendations that will initiate programmatic and policy changes to support the parking management program. The policies and procedures of the community staff are what keep the program moving forward and set the stage for success.

The recommendations within this bucket are below.

| | | |
|---|---|---|
| **Update and Right-Size Parking Requirements** | **Efficient Enforcement Practices** | **Manage Transit Station Parking** |
| **Proactive Curb Management Policies** | **Data-Based Decision-Making** | **Develop an Annual Report for Parking System** |

## Update and Right-Size Parking Requirements

As previously discussed, parking codes often require too much parking for an urbanized area because people will park once and walk to multiple destinations, will use multimodal options more readily, or will not use a vehicle to get around. Updating and right-sizing the Code ensures that new parking supply associated with new development doesn't provide a surplus of unnecessary parking while still supporting the new development. Adjustments would need to be made to the citywide development code, including parking requirements, shared parking policies, and separate Downtown parking requirements from the rest of Ogden.

**1** Establish a committee with City planners, transportation planners, and developers and lenders to meet regularly (once a year to start). Keep an open dialogue on barriers and opportunities for development within Ogden.

**2** Adjust the current parking requirements to the recommended requirements suggested on page 30 of this report.

Differentiate parking ratios for small retail and big box retail land uses.

**3** Adjust the walking tolerance from 500' to 1,000-1,300' in the shared parking ordinance. See other recommended changes to shared parking ordinances in the shared parking recommendation.

**4** Evaluate parking demands annually for both public and private parking to establish trends.

**5** Eventually, consider shift to minimum/maximum combination, maximum only, or no parking restrictions to further right-size parking supply in Downtown.

Benefits of updating parking requirements include:

- Creates a balanced parking system that can accommodate the needs and vision of the City.
- Reduced subsidization of auto trips.
- Increased reliance on centralized parking system.
- Reduced underutilized restricted parking.
- Encourages infill development as well as multimodal transportation.
- Adequate parking requirements reduces the cost of development, which also increases affordability for tenants.

Challenges that may be associated when updating parking requirements including:

- Design guidelines should require features to enable bike and pedestrian travel to and around new development.
- This strategy should be partnered with annual monitoring of parking demands. Don't adjust annually as that will create confusion with developers and lenders. Rather, evaluate every five to ten years depending on what the data dictates and the group discussions with developers. This time also allows Ogden to observe true trends in occupancies for land uses.

### Complementary Strategies

- Repurpose Underutilized Parking
- Update Time Limits
- Incorporate Wayfinding

## Efficient Enforcement Practices

Enforcement is a critical component of any parking system. People will only comply with parking regulations and rules if they are enforced. Ideally, enforcement should monitor the areas with regulations as frequently as those regulations dictate. For instance, if there is an area with two-hour parking time limits, then enforcement should come around every two-hours each day for all hours of enforcement. This can be daunting for the City in terms of budget and staffing when the enforced parking areas expand or time limits change. However, an effective means of enforcing parking without having to massively increase staff is by implementing sporadic enforcement at first. As budget allows, staffing can be increased to perform more regular enforcement.

**1** Compile any existing enforcement logistics (e.g., areas covered, number of enforcement officers, protocols and procedures, responsibilities of enforcement staff, and budgets).

**2** Review fee structures for citations. Warnings for first-time offenders, graduated fee structure for repeat offenders. Same time of graduated fee structure for payment of citations – becomes more expensive the longer the bill is unpaid.

**3** Establish performance measurement tools and standards for communicating data collected
- Frequency of violations by type
- Capture rate (20% rate wanted)
- Location of violations by type

**4** Consider an ambassador-style approach to enforcement where enforcement officers are knowledgeable about the City and surrounding attractions to help visitors find their destinations.

**5** If staff can't cover new enforcement areas, pilot test changing enforcement practices so that sporadic enforcement is conducted.

Don't establish a set route or schedule in the new areas of enforcement. Rather stagger them so the area is covered, but it is not predictable.

Benefits associated with producing efficient enforcement practices include:
- Establishing a culture of compliance with parking regulations.
- Producing key indicators for the parking system.

Challenges that should be considered when implementing this strategy include:
- Enforcement must be frequent.
- Producing enforcement practices requires adequate signage and notices that allow users to know what is required to park properly.

### Complementary Strategies
- Promote Shared Parking
- Update Time Limits
- Incorporate Wayfinding

## Manage Transit Station Parking

Managing transit station parking supports and encourages transit ridership by preserving adequate parking spaces for transit users. However, transit lots are often managed by the transit provider. In Ogden, the transit station is managed by UTA. The strategies for management will have to be coordinated between the City and UTA.

Management of transit parking should only occur once the parking occupancy has reached effective capacity of 85% or higher for at least two weekdays on differing weeks. Management strategies can vary from station to station depending on the goals and characteristics of that station. However, this strategy is a long-term strategy and is focused on performing more detailed analyses than this study was able to perform to determine the need and level of transit parking management.

**1** Monitor and assess the parking occupancy, parking duration, and ridership at Ogden's Intermodal Transit Center. A survey of riders and those parking should be conducted.

**2** Partner with transit providers to ensure they are supportive of data necessary to determine the transit station activity (ridership by station, by time of day, by day of the week, and by month of the year).

**3** Continue to invest in improvements for bicycle and pedestrian connectivity to the transit station. Improvements should focus on new paths or routes, lighting, seating, parking, wayfinding signage, etc.

**4** Once parking occupancy reaches or exceeds 85% occupancy, implement restrictions that encourage commuters only between morning peak hours and open to the public after that time. Use permits to regulate. The partnership with transit providers will help establish price for permit (if any), and other protocols.

**5** Continuously monitor and evaluate parking for transit stations. Share and discuss the findings with the transit providers through the partnership. Make adjustment as needed based on data metrics.

Benefits associated with managing transit station parking include:

- Encourages transit and non-motorized travel.
- Supports affordable housing and diverse land-use mix.

Challenges that may arise when implementing this strategy include:

- Both high transit ridership AND parking demand is a necessity before implementing parking regulations, so transit ridership isn't discouraged.
- Balance any parking costs and transit costs. If parking and transit combined are more expensive than driving, this could deter transit use.

### Complementary Strategies

- Leverage Mobility Options
- Update Parking Requirements
- Promote Shared Parking

## Proactive Curb Management Policies

Demand for curb space is increasing as cities work to balance transit demand, on-street parking, truck loading/unloading, personal deliveries (e.g., package delivery such as UPS, FedEx, and Amazon, and food delivery services such as GrubHub), dockless, and on-demand mobility devices such as bikes and scooters, emergency services, pedestrian streetscape amenities, and other users. All these users want free and unimpeded access to curb space, and like other public resources, cities must operate and manage the curb effectively to provide access for a variety of users, while optimizing overall public benefit.

| | Residential | Commercial & Mixed Use | Industrial |
|---|---|---|---|
| 1 | Support for Modal Plan Priorities | Support for Modal Plan Priorities | Support for Modal Plan Priorities |
| 2 | Access for People | Access for Commerce | Access for Commerce |
| 3 | Access for Commerce | Access for People | Access for People |
| 4 | Greening | Activation | Storage |
| 5 | Storage | Greening | Activation |
| 6 | Activation | Storage | Greening |

Source: http://www.seattle.gov/transportation/projects-and-programs/programs/parking-program/parking-regulations/flex-zone/curb-use-priorities-in-seattle

Cities, such as Seattle, have implemented curb management programs to manage the curb uses. The graph to the right demonstrates their curb use priorities by street-type.

**1** Compile and review existing curb management policies and practices. Map out and understand how all curb uses in the city are regulated. If they are conflicting, identify ways to align them.

**2** Develop curb lane priorities for different street types, as demonstrated in the example from Seattle DOT.

**3** Produce a strategy for curbside management that will act as a framework to guide decisions around the curb supply and use.

**4** Conduct a pilot study to test optimal curb uses based on the priorities and framework previously established. Incorporate findings of the pilot into the policy and implement curb uses.

**5** Monitor and make changes or additions as data from analyses and community feedback dictates.

Benefits of implementing proactive curb management policies include:

- Prioritizes and manages often competing curb uses by location, day of week, type of user, and time of day.
- Articulates objectives for different curb uses and different parts of the city.
- Clearly outlines when, where, and how to implement changes to curb use designations.

Challenges that can arise with the implementation of proactive curb management policies can include:

- Involves significant and transparent coordination with business owners, public, and other stakeholders.

### Complementary Strategies

- **Promote Shared Parking**
- **Update Parking Requirements**
- **Parking for Economic Development**

## Data-Based Decision-Making

One of the central tenets of the new approach to parking and mobility management should be the use of system data to support better policy and practice decisions that are consistent with the intended vision and outcomes of the program. This will include the frequent collection of data, ongoing analysis of data, and use of performance metrics and thresholds to define when and how to make changes. Thresholds are identified in the Data Collection section of this report. Specific data collection mechanisms for Ogden are described in the last section of this report.

**1** Continue to conduct a comprehensive parking occupancy data collection annually by cataloguing parking inventory and occupancies. Inventory should include the type of facility (on-street, lot, garage), ownership (public or private), number of spaces for each facility or block, and any regulations (time limits).

**2** Use this study's recommendations to define data thresholds, location characteristics, and intended policy outcomes.

**3** Establish protocols, expectations, and methodology for annual data collection and analysis to define impacts of performance.

**4** Create analysis and reporting templates that can be used annually or as frequently as desired. The template and analysis should be folded into the annual report (see next strategy).

**5** Define intervals for adjusting the system (annually, semi-annually, quarterly, etc.) Combine with marketing and education campaign when changes are made.

Benefits of implementing data-based decision making include:

- Improves the ability to track the impact of changes made to the system.
- Improves communication and marketing for the parking system.
- Establishes trusted, baseline metrics for making year-over-year transportation and mobility enhancements.

Challenges that may be associated with data-based decision making include:

- Requires intentional consideration of data collection process to create consistent sets of data and meaningful analysis.
- Due to staff availability, time, or funds, it may not be feasible to conduct annual data collection. If that is the case, select known area hot-spots and collect data for a limited period of time.

### Complementary Strategies

- All Recommendations

## Develop an Annual Report for Parking System

The development of an annual report to assess the parking system of the City ensures that the system is consistently being analyzed under equivalent analysis. Many strategies need to be monitored annually to determine their impacts and whether or not adjustments need to be made. An annual report is a great way to consistently monitor the data year over year.

**1** Identify key report goals and overarching topics for annual report including setting the scene, innovation/new developments, education and enforcement, and finance.

**2** Develop a storyboard template that outlines report sections based on defined topics, graphics to be used, and maps and tables to communicate results.

**3** Identify what data collection and analyses are necessary to produce the report based on the storyboard.

**4** Produce a report outline to be followed for each annual report with the goals and key takeaways of the report in mind.

**5** Develop a theme for the report that matches the brand of the City. Coordinate maps, graphics, and tables with the theme.

**6** Perform annual data collection. Data collection mechanisms are described in the last section of this report.

Benefits of developing an annual report for the parking system include:

- Allows for consistent analysis of the parking system.
- Provides a means of tracking metrics so that historical databases are established.
- Allows planners to draw conclusions about what community-wide changes have impacted the parking system, such as transit or transportation additions or modifications, new development, and economic growth.

Challenges that may arise when developing an annual report include:

- Requires significant coordination amongst parking management staff to determine metrics and elements to report on each year.
- Requires data to be collected annually.
- Must devote a certain amount of staff time each year to prepare the annual report.

### Complementary Strategies

- All Recommendations

## *Alternatives for Annual Data Collection and Reporting*

Comprehensive data collection may not be feasible each year due to staff availability, other City projects, available funds to make resources available, etc. While collecting comprehensive data is the ideal situation, it is not imperative to the success of the parking system management. There are alternatives so that meaningful data can be collected without the need to dedicate valuable staff time and City resources.

The following are a few alternative options for data collection and reporting.

- **Extended Collection Period:** The entire study area does not have to be collected all at once as long as the collection days are typical (meaning there are no events or other disruptions to normal commute and parking patterns). For weekdays, the best days to collect typical data is Tuesday, Wednesday, and Thursday. Mondays and Fridays are often slightly abnormal because those are days when stores may be closed or employees extend their weekends, etc. Mondays are an acceptable alternative, but Fridays should be avoided if possible.

  Staff can spread out the collection period over a number of weeks, only collecting data a few hours each day for a few facilities, until the area is collected.

- **Reduce Study Area and Times:** Identify areas with known high demands from previous studies. Identify the peak hour(s) from those studies as well. Only collect data in those areas at those times of day. This can be conducted over a number of weekdays (or weekends if that is a peak period), until the data is collected for the selected area.

  If a significant change in occupancy is discovered between the years data was collected, the City can continue to do spot checks of occupancy in different parts of the Downtown area to confirm how widespread the changes are.

- **Collect Every Other Year:** Collecting data every other year will provide the City with updated baseline data that can help the City make meaningful changes to the system. This collection can be conducted on the full Downtown area or in smaller portions.

- **Maintain a Parking Database:** If maintaining and updating a full report is time consuming for the available staff, maintaining and updating a database is always helpful. A database can be kept in an Excel file or ArcMap shapefile. The database should include a facility name or number, a map with each facility identified by the correlating name or number, regulatory and enforcement information, number of spaces, and occupancy at any time data was collected for that period.

  The City has already established this type of database in Excel and ArcMap. Maintaining and updating it year over year will allow the City to track changes, draw conclusions on why those changes occurred, and make data-based decisions. This type of tracking may be more useful for internal purposes, whereas an Annual Report would be something that is public facing and shared outside of the department.

Given staff levels and resources, the City may come up with other alternatives for collecting data. There are always lighter versions to collecting and reporting data. The key is to keep collecting, even if it's on sample-size data. The City should set a goal to conduct a comprehensive collection of data at least every 3-5 years as resources allow.

## Strategies for Managing Parking Assets

These strategies focus on the parking resources within the community. The intention of these strategies is to properly allocate and use parking resources more efficiently. If the use of parking resources is optimized, then more spaces can be made available in high-demand locations. As a result, there is less need to construct expensive new parking supply. However, planning for new supply and managing it properly is important to maximize its use. This bucket also includes strategies to help proactively plan for new parking supply with a transparent process. The parking recommendations within this section include:

**Flexible Shared Parking**

**Repurpose Underutilized Parking**

**Enhance Parking Permit Program**

**New Parking Supply for Economic Development**

## Flexible Shared Parking

Shared parking is a strategy that allows two or more property owners to share the spaces in a single parking facility. The facility is usually underutilized and the joint use of the lot allows two or more different properties to meet their parking demands without constructing expensive parking spaces for each individual property.

Ogden currently has a shared parking ordinance that allows properties within a 500-foot distance of shared parking assets to qualify for shared parking opportunities. Updating the current policy to improve shared parking and provide more shared parking opportunities would benefit the parking system. Action items for this strategy includes:

**1** Expand shared parking distance to 1,000-1,300 feet to allow for greater flexibility in the Downtown area.

**2** Establish a template for shared parking agreements. The templates should cover the main topics (liability, maintenance, number of spaces shared and time of day, etc.), while also providing flexibility to allow property owners to add their nuances to the agreement.

**3** Require appropriate signage or markings to indicate who, when, and where people can park in shared facilities, especially if part of the lot is available for public parking.

**4** Use parking occupancy metrics for evaluating effectiveness of shared parking arrangements. Evaluate annually.

**5** Consider centralized shared parking facilities. Allow developers to invest in a centralized parking facility they can use to meet their parking needs. Can be accomplished with an in-lieu fee program or the City can construct it and developers pay a fee to park (as in Boise).

Benefits of updating policy to improve shared parking include:

- Updating policy will provide significant parking facility savings for developers and ultimately tenants.
- Shared parking policy encourages multimodal transportation.
- Shared parking reduces the cost of development while increasing affordability.
- Promotes development by optimizing the use of land
- City is the keeper and facilitator of all agreements

Challenges that can arise when updating this policy can include:

- The parking management department is accustomed to inflexible minimum parking standards.
- Shared parking policy requires flexible parking standards, verification, and enforcement.
- This strategy should be in accordance with a minimum of annual monitoring of parking demands.

### Complementary Strategies

- Wayfinding
- Repurpose Underutilized Parking
- Parking Requirements

### Repurpose Underutilized Parking

Repurposing underutilized parking allows parking facilities to be utilized as a new entity until the parking is in demand again. This is an especially important strategy as the community faces the continued impacts of COVID-19. The intention of this strategy is to provide flexibility in the Code to allow for lots or portions of garages or on-street parking to be repurposed as another use, such as the extension of business space, parklets, or some other necessary use. The following action items are recommended for the implementation of the strategy.

**1** Develop policy changes that will allow a property owner with an underutilized lot or adjacent spaces to apply to use the spaces temporarily (six-months to one-year) for a new purpose.

**2** Establish a procedure for applying for repurposing a lot or public spaces, such as on-street parking. Applicants should prove severe and consistent underutilization (less than 30% occupied for more than eight hours per day for the last month).

**3** Require monthly status reports by the applicants to verify that parking occupancies are remaining low and the new use is not creating parking demand issues. Establish a timeframe (six months for instance) where the new use becomes more established and quarterly occupancy verifications are required.

**4** Continually monitor parking occupancies throughout the city so that these underutilized parking arrangements can be modified as needed.

Benefits of repurposing underutilized parking include:

- Reduces underutilized parking facilities.
- Reduces facilities required for enforcement.
- Reduces the need for new parking facilities in the future since the repurposed facilities are temporary.

Challenges that can occur when implementing this strategy can include:

- Opportunities for repurposing may be difficult to obtain.
- May require the development of a permitting system specifically geared towards repurposing parking facilities.
- This strategy should be complemented with a minimum of annual monitoring of parking demands.

## Complementary Strategies

- Shared Parking
- Proactive Curb Management
- Parking Requirements

## Enhance Parking Permit Program

Parking permit programs protect parking spaces for different user groups, such as residents or employees, so that these users are able to park in areas that are convenient and are not blocked by visitors. Permit programs ensure that people are parking where they should and therefore make the system function more efficiently. It should be noted that a permit system is not the same as a space reservation. Permits do not guarantee an available space, rather they allow a valid permit holder to park in an area or for longer periods while restricting other users from parking in a designated area or at a designated time of day.

Ogden has an established permit program for employees, municipal building parking, and visitors, as discussed previously. The following are recommendations to maintain and strengthen the program.

**1** Post a map on the City's website that shows permitted parking areas.

**2** Encourage employees to park in off-street facilities. Designate lots and garages for employee parking. Communicate and coordinate with business owners for them to comply.

**3** Permit parking areas should be contingent upon parking occupancy (lack of parking near destination and available parking in facilities to designate long-term permit parking areas).

**4** Collect occupancy and inventory data annually to proactively designate employee permit areas and adjust as necessary.

Benefits associated with strengthening the City's parking permit program include:

- Protects parking assets for residents and employees when they need parking most.
- Allows visitors or short-term users access to appropriate locations.
- Optimizes the use of underutilized parking facilities.

Challenges that may result due to this strategy include:

- Meaningful enforcement is required to encourage compliance to the parking permit program.
- It is essential that the program is supported by business owners, employees, and residents.
- The parking program must allow for flexibility and growth within the program to make beneficial changes to businesses and residents.

### Complementary Strategies

- Shared Parking
- Leverage Mobility
- Parking Requirements

## New Parking Supply for Economic Development

Producing new parking facilities for the economic development of Ogden is meant to support both new and existing development. Parking is a community asset that can support the City's economic development strategy. This strategy establishes protocols for new parking supply so that it supports both planned and future economic growth. Action items for this strategy are displayed below.

**1** Bring together various City departments to identify opportunities and challenges with City processes to partnering on new parking opportunities.

**2** Form a committee between City departments and developers to guide the process. Establish design guidelines for garages and lots to help new facilities blend with surrounding development.

**3** Develop guidelines, protocols, and incentives:
- What portion of overall supply should be public?
- Safety and design
- Incentives for developers

**4** Identify investment strategies:
- Invest in transformation project
- Parking investment district
- Identify properties to infill or become parking

Benefits that arise with focusing parking growth on economic development include:

- Creates a standard procedure for the City and developers to follow to ensure parking supply matches the pace of growth.
- Proactively engages departments and developers in the decision-making process.

Challenges that are associated with the strategy include:

- A clear vision and goals are required to determine how to identify and locate new parking supply.
- This strategy requires the parking management staff to look beyond parking and incentivize economic growth while determining how parking fits with other strategies.

### Complementary Strategies

- Shared Parking
- Leverage Mobility
- Parking Requirements

## Strategies for Managing Parking Demand

This subsection discusses strategies that focus on vehicular trips, how people travel, and where they park to reach their destinations. This includes encouraging multimodal transportation, as well as using management strategies to redistribute where people park. Allocation of parking, which is the focus of Managing Parking Assets, dictates where people can park by the City or a private entity. The strategies for Managing Travel Behavior put the decision on where to park on the user by using incentives and disincentives to move people into low-demand parking areas.

The strategies within this bucket are:

| | |
|---|---|
| Update Time Limits | Incorporate Wayfinding |
| Efficient Use of Technology | Enhance and Leverage Mobility Options |

## Update Time Limits in High-Demand Areas

Time limits restrict the length of time any single vehicle can park in a space. Most often time limits are seen in on-street spaces to encourage turnover in front of buildings. Changing time limits, especially in high-demand areas, should be adjusted to reflect the occupancy of the parking facility so that turnover is encouraged and therefore more parking availability is created.

Ogden has a number of time limits for on-street parking ranging from one-hour to two-hour limits. The maps below compare the time limit regulations (shown in dark blue) to the occupancy map shown previously in **Figure 6**. The data shows that blocks with time limit regulations have lower occupancies. However, the blocks adjacent to the time limited blocks have higher occupancies. The following are recommendations for using time limits to balance the parking.
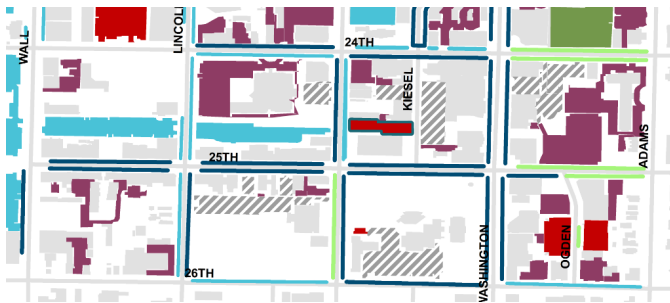


**1** Consider reducing time limits along 25th Street to one-hour time limits. Also consider adding two-hour time limits to blocks along 24th Street that currently don't have time limits between Lincoln and Washington.

**2** Establish frequent, consistent, and transparent communication with the public and business owners regarding changes to parking time limits. Patrons and business owners will want to know what is changing, when, and why. An annual report (discussed previously) can be used as this messaging tool.

**3** Conduct annual inventory and occupancy data collection to monitor and track parking occupancies in the area. Adjust parking time limits as necessary. Blocks to watch are Lincoln and Grant adjacent to 25th Street due to their proximity to the high-demand area that already has time limits.

Benefits that arise with updating parking time limits include:

- Encourages use of underutilized parking while reducing the need for new parking development.
- Encourages turnover and shifts long-term parking users to less convenient facilities.

Challenges associated with updating parking time limits include:

- Areas with time-limited parking must have access to viable transportation choices.
- This strategy should be complemented by annual monitoring of parking demands.

### Complementary Strategies

- Parking Requirements
- Leverage Mobility
- Enhance Enforcement

## Incorporate Wayfinding

Themed and branded wayfinding signage is an effective method for communicating parking demands throughout the area or city. The signs reduce confusion for visitors with clear indication of public parking (even parking that is privately owned, but available for public use). Signage helps visitor reduce their time hunting for a parking space.

Ogden currently has a wayfinding system in place in the Downtown area directing the public in a hierarchy system to public parking areas.



**1** Create a parking map in the branded theme and post on the City's website.

**2** Annually review the wayfinding signs for damage or development changes in the Downtown area.

**3** Consider creating an incentive program for private parking owners that offer public parking to opt into the branded parking theme. Private facilities with the public branding may be more attractive for customers because it is recognizable.

**4** Consider technology, such as smartphone applications that provide real-time parking availability or parking regulations.

Benefits that are observed with incorporating wayfinding include:

- Helps distribute parking demand while encouraging parking regulation compliance.
- Aids parking utilization in making available parking easier to find for user.
- Increases communication with residents and visitors.

Challenges that may be associated with incorporating wayfinding into the parking system include:

- Introducing wayfinding requires coordination and production of new signage or technology.
- Wayfinding may be considered as more of an investment than other strategies depending on static or dynamic signs as well as the number of signs needed.

### Complementary Strategies

- Parking Requirements
- Leverage Mobility
- Technology

## Efficient Use of Technology

Technology can vary widely depending on what it will be used for. Smartphone applications and dynamic messaging and real-time parking availability are technologies that direct users to available parking. Other technologies include those used to collect transactions, manage permits, and enforce. Introducing the use of technology into the parking system can improve access to parking facilities and improve overall circulation. However, it is important to first know what goal you wish to achieve before investing in technology because there are many options and they can be expensive.

**1** Assess the current procedures for processing parking and enforcement data. Conduct a benefit and challenges analysis to determine areas of opportunity and improvement.

**2** Establish goals of the City that may be reached through implementing technology (e.g., data collection, real-time availability, permitting). Consider software platforms and integration barriers or opportunities.

**3** Determine what metrics can be pulled from using technology, such as parking occupancy and duration from real-time counting systems, or citation data from handheld GPS for enforcement officers.

**4** Conduct a pilot study to test technology performance
- Identify pilot period and metrics vendors need to collect
- Public survey to gauge customer satisfaction

Select preferred technology(ies) based on results.

**5** Train staff on the adopted technology. Training should include how the technology works, backend data management, maintenance, and operations.

**6** Conduct a messaging campaign to advertise the changes and how to use the technology.

Benefits that are observed with using technology efficiently includes:

- Enhances the user experience.
- Increases convenience for City parking duties, such as data collection, parking management, and transaction processing.
- Reduces City staff overhead time for permitting and payment administration and management.
- Better balances parking access and utilization.

Challenges that may arise when implementing technology into the parking system include:

- Many technologies are available with lots of "bells and whistles." They are also expensive to implement. Having a clear goal for how technology will be used can help whittle down what technology is really needed and useful.
- Introducing technology requires training staff who will utilize the new technology.

### Complementary Strategies

- Permit Parking
- Enhance Enforcement
- Incorporate Wayfinding

## Enhance and Leverage Mobility Options

Enhancement of mobility options within the city will create more options for moving both people and goods. By leveraging the existing multimodal options available within the city, such as bikes, scooters, transit, sidewalks, etc., Ogden can reduce its reliance on single-occupancy vehicles while maintaining the same level of mobility and access.

**1** Assess annual usage of bikes, scooters, transit, and pedestrian volumes, and compare to parking occupancy to identify connectivity gaps and opportunities.

**2** Identify specific mobility goals and objectives for Ogden City that promote improvements and relies on data to make planning and investment decisions.

**3** Establish programs, projects, or technologies to reach mobility goals, e.g., Complete Streets, transit hub, bus services, bike facilities, bike and pedestrian connectivity, bike parking, lighting, etc.

**4** Update ordinances to reflect and promote new mobility goals and programs as appropriate.

**5** Identify investment opportunities to plan, design, and construct multimodal projects for enhanced connectivity.

Benefits that come from enhancing and leveraging mobility options include:

- Encourages shared mobility options.
- Reduces commute impacts and improves commute knowledge.
- Redefines how users move throughout Downtown Ogden.

Challenges associated with this strategy include:

- Requires funding.
- This strategy will always be evolving and changing. Must track this data in conjunction with parking data to draw conclusions about how multimodal changes impact parking demand and vice versa.

### Complementary Strategies

- Parking Requirements
- Parking Permit Program
- Transit-Oriented Development

# 9. Data Collection – Methods and Metrics

# 9. Data Collection – Methods and Metrics

Data is a critical part of tracking and monitoring all aspects of the parking program. Comprehensive data, especially historical data, helps the City and the public understand what, why, and how decisions should be made for improving the system. The following is a list of data that should be collected on a regular basis. The data should be collected annually and included in the parking program's Annual Report.

### Parking Inventory
Provides the baseline for analysis and allows the City to track changes to the parking system over time and the impacts of those changes (e.g., removal/addition of parking, regulatory changes).

### Parking Occupancy
Indicates how well the system is being used and when parking strategies need to be implemented or adjusted. Time-limit policies can be adjusted to either encourage or discourage use.

### Parking Duration
Indicates how long people are staying in given locations. Timing, and eventually pricing, policies can be adjusted based on the surrounding uses and turnover rate. Collect only in high-demand areas.

### Parking Citation Volume and Type
Indicates how many citations are issued and whether violations are occurring in isolated areas over a given period of time and whether citations are increasing. Further analysis could figure out why that is and whether an adjustment to parking strategies and policies are needed.

### Program Revenue and Expenditures
Changes in revenue, when viewed granularly, can define how parking demands are shifting, and the success of policy changes. Revenue should include citations and permit revenues.

### Customer Satisfaction
Conducting customer satisfaction surveys periodically can define how patrons are reacting to changes in the program. The City should consider satisfaction levels of residents, businesses, employees, and customers at a minimum.

### Vehicle Congestion
Reduction in vehicle miles traveled and localized congestion is an indicator that parking management strategies are effective at redistributing demand and overall access to the community.

### Mode Split and Transit Ridership
Mode split in the community is a key characteristic in defining shifting behavioral and access patterns. Reductions in drive-alone rates can be a clear indicator that parking policies are working.

## Data Collection Plan

Data should be collected in a consistent manner each year to ensure that the metrics are comparable. Therefore, Ogden should develop a data collection plan that specifies the staff necessary to collect each data point, equipment needed (cameras, GPS, pen/paper, water, etc.), the timeframe necessary to complete the task, specific instructions on how to collect the data, analysis standards, and reporting standards. When first initiating, staff should also be trained before entering the field to collect data. This ensures consistency in the collection methodology.

With a major disruption, such as recently experienced with COVID-19, the City may need to pause on data collection efforts for a year or at least until the extent of the disruption is apparent. In the case of COVID-19, the extent is ambiguous, and the baseline may have shifted. As the City feels more comfortable in conditions stabilizing (not necessarily returning to normal), data collections can be performed. In fact, as things start to come back in increments, it would be prudent of the City to do more frequent collections in sample locations. The sample locations should be in high-demand areas or areas where the City is experiencing change. The frequency of collection of the sample areas should be every six months to gauge how things are changing.

## How to Use the Data

The following provides further details on how to use the data that is collected.

### Parking Inventory

Create an inventory database that can be updated annually. The database should include:

- Type of space (on-street, lot, garage)
- Ownership (pubic or private)
- Regulations (time limits, enforcement hours)
- Location
- Number of spaces (total and by type if it's a shared facility)
- Other information (such as, is the facility shared? Is the parking for transit riders only?)

The database should also track what spaces were lost or changed in some way (no longer shared but total spaces in the same, lot removed, block experiencing construction so there is no parking that year, etc.). The inventory is a baseline metric that helps provide context for the other data metrics.

### Parking Occupancy

Regardless of what is being evaluated, whether it's time limits, permit system, parking requirements, curb management, etc., parking occupancy is the key metric used to determine when the next level of change is necessary. Ogden should consider making parking management adjustments once a set of adjoining parking spaces (e.g., a continuous block face or more) or a parking lot or garage is consistently experiencing the following:

- Parking occupancies reach or exceed 85% or more for three or more hours over at least two weekdays (measured in separate weeks)
- Parking occupancies reach or exceed 70% five or more hours over at least two weekdays (measured in separate weeks)

Once those thresholds are reached, the City should consider implementing the next phase in a recommended strategy.

### Parking Duration

Parking duration should be collected in high-demand areas only so that time limit regulations can be adjusted. The intention is to encourage turnover of spaces, creating more availability. Duration data does not need to be collected each hour of the day, like occupancy data, but rather only the hours surrounding and including the peak times of day.

## Parking Citations

Enforcement officers can collect and share this information on a regular basis in an interval that is agreed upon with the City planning staff (monthly, quarterly, annually). While there are no specific metrics, this data will help determine hotspot locations for certain types of violation types. After a couple of years of consistently collected data, the City can set thresholds for making improvements to the enforcement practices.

## Parking Revenue and Expenditures

Knowing how much money is spent on parking helps to inform conversations about how impacts to parking will also impact other areas of City planning. For instance, as various departments review budgets, it is a good opportunity to have conversations about how parking has impacted transit or development and so on. It is also useful for when there are conversations about how to price parking, such as permits or parking at transit stations, if and when the parking program matures to that point. A parking revenue report also helps establish budgets to help support other interventions, such as signage, collections, or technology.

## Customer Satisfaction

Survey the community on an annual basis to gauge feedback from customers, business owners, property owners, developers, residents, and other representatives. The survey should ask similar questions year over year to display historic trends.

## Vehicle Congestion

Vehicle congestion data is available from WFRC and can be cross-analyzed with other data that the City collects. The data can be added to the reports to help draw conclusions about how the implementation of the recommendations has impacted the number of vehicles on the road.

## Mode Split and Transit Ridership

Data collected by WFRC and UTA can be used to build this dataset to track the percentage of those who travel by single-occupancy vehicle, bike, pedestrian, and transit. In this category, the City could also track the usage of bike-share programs and other mobility programs. UTA can provide detailed ridership data for each station within Ogden as well.

# 10. Implementation Timeline

# 10. Implementation Timeline

The timeline for implementing strategies recommended in this plan is divided into three planning horizons: short-term (now to two years), mid-term (three to five years), and long-term (more than five years). The matrix below indicates when each of the strategies should be initiated, guided by the principle of taking steps appropriate to the size and complexity of the problem. The implementation plan is ordered in a way to firmly establish the groundwork for a parking program. Many of the tasks initiated in the short-term planning horizon will still be continued for years as a part of the program.

The matrix does not specify each action item for each strategy. This is because implementation of the various action items of those strategies will vary and will be dependent upon the changing conditions of the community and the ability to implement successive strategies. Once a strategy is initiated, it is assumed that the specific action items for the associated strategy will also eventually be initiated.

| Strategy | Type of Strategy | Evaluation Cycle |
|---|---|---|
| **Short-Term Planning Horizon (0-2 years)** | | |
| Right-Size Parking Requirements | Practices and Policies | Every 5-10 years |
| Data-Based Decision-Making | Practices and Policies | Annually |
| Update Time Limits | Manage Travel Behavior | Every 1-2 years |
| Develop an Annual Report | Practices and Policies | Annually |
| Enhance Parking Permit Program | Manage Parking Assets | Every 5-10 years |
| Flexible Shared Parking | Manage Parking Assets | Annually |
| Repurpose Underutilized Parking | Manage Parking Assets | Quarterly (site specific) |
| **Mid-Term Planning Horizon (3-5 years)** | | |
| Proactive Curb Lane Management | Practices and Policies | Every 5-10 years |
| Efficient Enforcement Practices | Practices and Policies | Becomes daily/weekly practice |
| Incorporate Wayfinding | Manage Travel Behavior | Every 5-10 years |
| Invest in Parking for Economic Development | Manage Parking Assets | Annually |
| **Long-Term Planning Horizon (over 5 years)** | | |
| Enhance Mobility Options | Manage Travel Behavior | Annually |
| Efficient Use of Technology | Manage Travel Behavior | Annually |
| Manage Transit Station Parking | Practices and Policies | Annually |

# SOUTH SALT LAKE

# PARKING STUDY



UTAH PARKING MODERNIZATION INITIATIVE

March 2021

# Table of Contents

# 1. Introduction

# 1. Introduction

The Wasatch Front Regional Council (WFRC) in partnership with the Mountainland Association of Governments (MAG), Salt Lake County, the Utah Department of Transportation (UDOT), and the Utah Transit Authority (UTA), led the Utah Parking Modernization Initiative (Initiative) to localize parking data and strategies so that communities within the Region are able to identify parking inefficiencies and appropriate solutions to proactively manage parking. As part of this Initiative, two partnership cities, South Salt Lake and Ogden City, were conducted parking studies specifically for their cities. The process and findings of these studies could then be used to localize data rather than relying on national standards.

The purpose of this South Salt Lake Parking Study is to assess existing parking demand within the City and compare to the parking requirements identified in the city's parking code as well as national standards. The Study identifies strategies that aim to optimize parking and transportation throughout the South Salt Lake. The Study concludes with an implementation plan for the City of South Salt Lake that integrates both parking strategies and travel demand management strategies to meet the goals of the City.

This study is also part of a regional effort to identify challenges and solutions that may be highly effective today along the Wasatch Front. The upcoming "best practices" guide for the region can be used to support these decisions.

*It is important to note that this Study, including the data collection, was started prior to the shutdowns and economic impacts of COVID-19 in 2020. At the completion of the study, the full economic impacts and transportation impacts have yet to be realized. The recommendations for this Study are intentionally flexible with guidance, arming the City with the knowledge and tools necessary to make informed, data-driven decisions. The impacts of COVID-19 are not fully known at the conclusion of this report, and will require a second look at development trends, transportation habits, and parking patterns under "new normal" future conditions.*

## History of Parking and Impacts on the Built Environment

Parking modernization is a concept for identifying parking strategies that reflect the world today and are flexible to grow with the future. It investigates and updates the antiquated regulations and policies that has guided parking in many communities across the Region and country since the 1950s. Since the car became a popular mode of transportation, city codes have attempted to identify and require the proper number of parking spaces necessary for development based on the type of land use and its size.

Parking policy has largely been reactive to changes in the community - meaning the parking codes change only after a problem has been identified. A proactive approach would involve identifying growth trends and goals within the community and adjusted to prepare for those changes and guide growth in a manner that supports larger community goals. Over time, complaints about a parking shortage (typically for a peak period despite a large supply otherwise), often led to parking policies and economic practices that shaped cities in ways that are now considered a detriment. These images show how parking has been handled historically across the country.



### Parking in the 1920s

- Traffic laws and regulations were starting to emerge
- Cars become common but streets still mixed with cars and pedestrians
- Historic downtown building rows added space for parking on-street.
- Parking lots were starting to form around land uses to accommodate cars

### Parking in the 1950s – 1980s

- Cars are favored over transit and many local transit services abandoned
- Parking codes adopted to ensure parking around land uses
- Piecemeal approach, by project
- Encouraged the pattern of isolated buildings ringed with parking familiar to us today

## Parking in the 1980s – 2000s

- Surface lots are prominent feature in downtowns and suburbs
- Encourage vehicle travel and discourage walking
- Deteriorating community attractiveness and connectivity
- Reliance on ITE & ULI National Standards
- Awareness growing that surface parking lots often negatively impact net revenues

## Parking Today

- Focus on connectivity and multimodal travel to reduce vehicle travel and parking
- Emphasis on building patterns that enhance walkability, character and attractiveness
- Parking seen as tool to support economic growth and viability
- Growth and transportation intertwined
- Changing nature of retail
- High land costs and shift toward parking garages make parking a expense
- Willingness to share and manage parking cooperatively
- Redevelopment agencies and cities negotiate parking requirements to suit both project and neighborhood goals
- Using parking studies and monitoring to keep a balanced supply and demand



*South Lake City Project. Source: The Salt Lake Tribune, December 2019*

## New Utah Parking Dynamics

Communities across Utah are experiencing an evolution of city design. Commutes, shopping patterns and personal transportation habits are changing. Parking needs to evolve, too. Some commonly faced challenges include:

- An oversupply of parking for many land uses. This is particularly concerning in downtown areas or areas with mixed uses or higher density, such as areas near transit stations. Parking codes tend to cater to suburban style development patterns. Requiring parking for every individual land use in close proximity does not adequately reflect how mixed-use, higher density areas operate.

- Concern for downtown/city center character, economic success and diversity where vacant parking may act as a barrier.

- Little to no management and control of existing parking assets, both public and private, creating an imbalance between supply and demand.

- Concern for increasing costs feasibility of new projects, due in part to the high cost of providing parking and its impact on affordability.

- Lingering resistance to paying for parking. However, this is giving way to paid parking in highly desirable areas.

- Reliance on national standards or standards from other communities that don't match the unique character, growth goals for the community.

## What Does It Mean to Modernize Parking?

Modernizing parking regulations, standards, and practices can mean many things depending on the community. However, generally speaking, it means to consider and incorporate a wide range of community elements and goals, beyond parking demand and land use.

A number of goals for the city must be recognized. The following graphic depicts various goals for a parking system. These are not goals traditionally thought of when thinking of parking. Today, parking is recognized as a part of the larger fabric of the community, often with an outsized influence. South Salt Lake can include any or all of these goals in its modernization effort – to drive investments and policies that achieve more than just housing a vehicle for part of a day.

### Overarching Parking Program Goals

**Support Existing Businesses and Residents**

**Create Attractive Places**

**Promote Equity**

**Promote Alternative Transportation**

**Promote Economic Growth**

**Enhance Safety**

**Promote Sustainability**

## What is a Parking Study?

A parking study presents information on a community's parking system. First, an area is designated to study. This can be a Downtown area or any area that is of interest to monitor for the community. The study process includes collection of pertinent data. At its base, this includes parking inventory and number of parked vehicles to determine occupancy for each facility in the defined area. The study should also look at existing policies that dictate parking regulations and practices for enforcing those regulations. Based on the analysis, the study will draw conclusions on what is working well and what can be improved with regard to parking. The data informs what strategy to implement next to make the improvements and what strategies to plan for in the future.

Once complete, the data compiled in the study is now a baseline of information for conducting updates to the data annually and continuing to implement recommendations as the data dictates.

**A successful parking system should…**

1. Support connectivity to transportation, land use, and economic development;

2. Provide access to businesses and destinations, linking parking to the economic enhancement of the community;

3. Serve as a transition point where alternative modes of transportation can cross paths and connect; and

4. Play a role in sustainability, measured by reducing traffic, congestion, and, therefore, greenhouse gas emissions.

Second, several elements about the community can be studied to get an accurate depiction of the parking system as well as the community characteristics that impact the parking system. The graphic below demonstrates many of the community-specific data that could be collected, analyzed, and/or reviewed as part of the study process. The depth to which these are all analyzed can vary depending on the goals, time, and money available to study them. These are all community-specific attributes, not data taken and applied from another community or from national standards, thus creating a more customized solution.

## Planning Process

For this study, each of the above attributes were reviewed and analyzed in some capacity. This document includes the following sections:

- Background information on the City's planning efforts and definitions for this study
- Review of existing data for Downtown Ogden and a review of land use specific demand observations
- Summary of how Transportation Demand Management can improve parking demand
- Summary of a peer roundtable discussion
- Recommendations by category
- Data collection plan and metrics
- Implementation timeline

**Community-Specific Study Attributes**
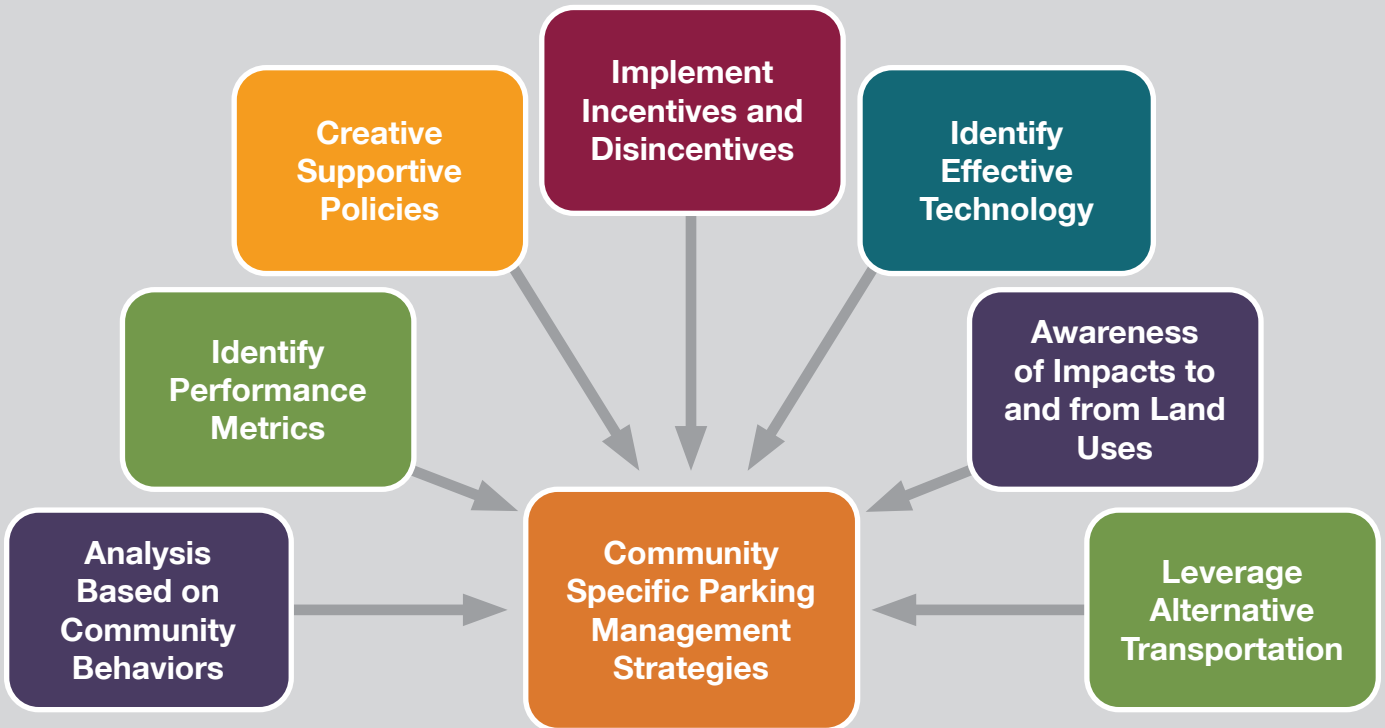
# 2. Planning Context

# 2. Planning Context

The City of South Salt Lake has several key master plans and zoning documents that support and form their City's future and growth. These documents include its General Plan and more specific neighborhood planning efforts, including the Crossing Master Plan, East Streetcar Master Plan and Zoning, and Downtown South Salt Lake Master Plan and Zoning. The City also has specific zoning for transit-oriented development areas, as well as for the expansive commercial, industrial and institutional uses within its boundaries.
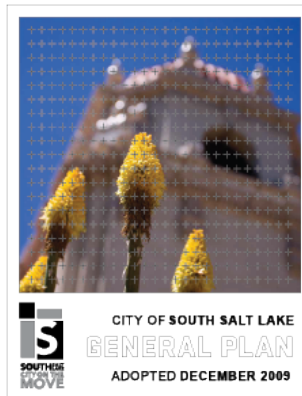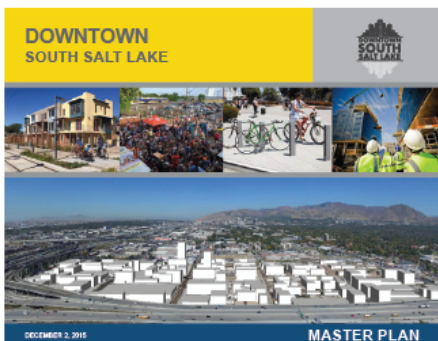


The following are overarching goals for Ogden based on the documents referenced in the Planning Context:

- **Goal 1:** Improve housing opportunities through revitalization of existing housing and development of high-density housing opportunities
- **Goal 2:** Enhance requirements for parking, development, and enforcement to support goals of the City
- **Goal 3:** Amplify alternative transportation infrastructure to create a transit-oriented community
- **Goal 4:** Improve existing roadways while enhancing efficiency and safety for both main roadways and residential areas
- **Goal 5:** Enhancing bicycle/pedestrian infrastructure and safety
- **Goal 6:** Redevelopment of industrial and commercial areas to transition to transit oriented development
- **Goal 7:** Enhancing open space, parks, streetscapes and gateways

The above goals act as parameters for the development of parking recommendations to ensure those recommendations align with the larger goals for the City.

The City of South Salt Lake is experiencing a surge of redevelopment and transit-oriented development along the TRAX light-rail line and along the S-Line streetcar line. City zoning has encouraged leveraging the close proximity to transit provide less parking and encourage transit and active transportation instead. As a result, South Salt Lake looked to this study to assess the balance of supply and demand in these new developments. It also wanted to understand the depth of the imbalance for parking in commercial, institutional areas that are known for large parking lots. In some cases, the supply far exceeds even the requirements due to changing uses in a given building.

This Study will examine the existing parking demand at various land use sites around the City and compare the results to the existing code requirements, as well as national standards, so that the City can right-size their parking requirements where needed. Additionally, travel demand management strategies are suggested where they could help reduce demand.

# 3. Existing Parking Conditions

# 3. Existing Parking Conditions

This section explores the data to assess the existing parking conditions. The existing parking conditions are analyzed through analyzing parking inventory as well as occupancy at various times of the day and week. Identifying trends of the existing parking conditions will aid in identifying opportunities in the parking system and producing strategies to improve it.

## Definition of Terms

The following terms and concepts are used throughout this report to describe the performance of the parking system or individual components of the system.

**Effective Capacity:** Effective capacity is an industry-accepted occupancy threshold for parking facilities that indicates the efficiency of a parking facility, shown as a percentage of spaces occupied. Greater detail on this term is provided on the next page.

**Parking Demand:** Parking demand is the projected number of vehicles generated by visitors or tenants of a land use. Each business or land use generates a specific quantity of demand for parking spaces to accommodate their users. The total number of spaces generated by business or land use is based on the land use intensity (often building square footage or number of dwelling-units).

**Parking Facility:** A parking facility refers to any on- or off-street location designated for vehicular parking.

**Parking Occupancy:** Parking occupancy is the percentage of occupied spaces in a parking facility at any given time. This ratio is calculated by dividing the number of observed vehicles parking in a facility by the number of total spaces in that facility.

**Parking System:** A parking system refers to the entire collection of parking spaces, parking facilities, technologies, equipment, policies, regulations, and personnel that work cohesively to provide parking in a given area.
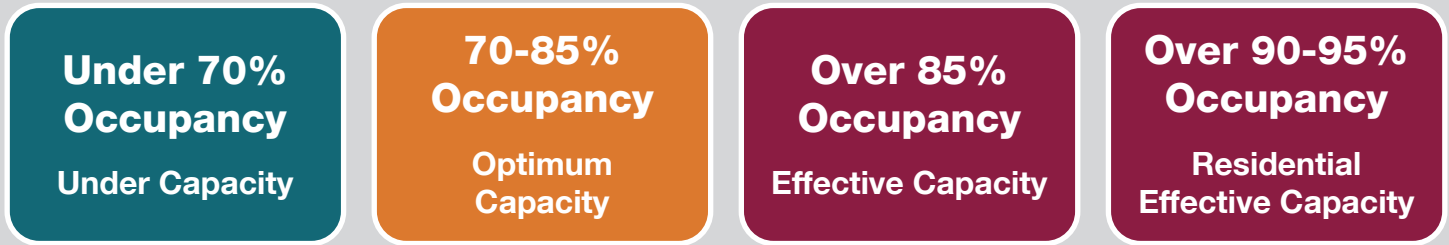
**Transportation Demand Management Program (TDM):** A Transportation Demand Management program is a set measure including policies, economic, and programmatic measures that aims to reduce vehicle miles traveled. Thisin turn reduces traffic congestion and parking demand. TDM Strategies often improves environmental, conservation and sustainability efforts as well. They can include measures that work to reduce single-occupancy vehicle trips, increase vehicle occupancy, and shift travel to other modes or non-peak travel periods. This is often achieved through financial incentives, local infrastructure and land use policy that constrains parking supply, densifies uses, and provides a suite of convenient transportation options, including walking, bicycling, transit, and rideshare.

## Performance Metrics and Thresholds

Parking occupancy is a key performance measure used to evaluate the effectiveness of the parking requirements and observed demand. The industry-accepted thresholds for parking occupancy are shown below. The ideal goal is to have a parking system, site, or urban center where 70% to 85% of the available parking spaces are occupied during the peak conditions. If too many spaces are occupied, then the remaining spaces are too hard to find. If too few spaces are occupied, then the land is not being used to its greatest potential and the parking can absorb more demand.

| Under 70% Occupancy | 70-85% Occupancy | Over 85% Occupancy | Over 90-95% Occupancy |
|---|---|---|---|
| Under Capacity | Optimum Capacity | Effective Capacity | Residential Effective Capacity |

An exception to the 85% effective capacity threshold is for residential land uses. Residents are extremely familiar with their parking options and will habitually park in the same location year after year. Therefore, the parking occupancy threshold can be increased to 90%, or even 95% in some cases, for these types of land uses.

The following are broad examples of parking management strategies that can be introduced as parking occupancies increase. The intention is to not immediately jump to more intense parking management strategies. This can cause pushback and concern from businesses and residents. Rather, strategies should be implemented gradually, giving time to analyze trends and make minor adjustments that improve the parking program that are based on data and informed by the community's needs.

| | |
|---|---|
| **No/Minimal Regulations** | • Parking is available and abundant<br>• No concern from residents and businesses |
| **Time Restrictions** | • Promote efficient use of parking through turnover, encouraging long-term parkers to look for other spaces or arrival options<br>• Managed through signage and enforcement |
| **Permit Parking Protections** | • Introduce permit parking system that restricts who can park in specific lots or streets (e.g. residential neighborhoods)<br>• Helps manage the overflow of parking from adjacent commercial areas |
| **Transportation Demand Management** | • Improvements to cycling, walking, transit, micro-mobility amenities over parking improvements |
| **Introduce Paid Parking** | • After resources are exhausted and parking demand in area grows past the acceptable threshold (85%), paid parking should be introduced |
| **Introduce Additional Parking** | • If parking demands continue to exceed the acceptable threshold (85%), more parking should be provided |

## Data Collection Methodology

Although the South Salt Lake study area is City-wide, site specific data collected on representative land use typologies was conducted. The City of South Salt Lake is experiencing significant development in Downtown and transit-oriented development areas. These sites were chosen to assess the parking system in the most crucial areas and types of development.

The data collection revealed parking occupancy that indicated parking behaviors by the land use types, which could then be compared to city code requirements and national standards. The land use typologies that were selected for this analysis were:

- **Commercial Corridor:** Mixed-use commercial land uses along a corridor. This land use normally ranges from 1,000 to 16,000 square feet and can be a combination of public, private, and on-street parking.

- **Big Box Commercial:** Box commercial sites that are surrounded by parking. If there are other small land uses on the same site (i.e., gas station) they are included as part of the site. An average size for Big Box Commercial areas is approximately 82,600 square feet, which requires about 420 parking spaces (according to city code?).

- **Urban/TOD Housing:** High-density housing units such as apartments or condos. These can be in a mixed-use building and may also be near transit (TOD).

- **Transit Station:** Light rail transit station for the UTA TRAX system. Each transit station presents unique challenges and opportunities based on its surroundings and characteristics. The transit station typology is evaluated on type of service, ridership, surrounding land use, street network, and walkability. This typically requires approximately 80 to 100 parking spaces, however, the parking provided at SSL stations varies widely

- **School:** K-8 school with small periods of high demand each day for drop-off and pick-up activity. In this land use, there are an estimated 270 students and 120 parking spaces.

**Parking inventory and parked vehicle counts were collected over:**

# 1 Weekday | Wednesday, March 11th
# 1 Weekday | Saturday, March 14th
# 7:00 am - 7:00 pm | Both Days

*It is important to note that the data was collected prior to government mandated shutdowns related to COVID-19. The analysis that results from this data is pre-COVID and does not reflect the reduced parking and traffic and transit demands experienced from March 2020 through December 2020.*
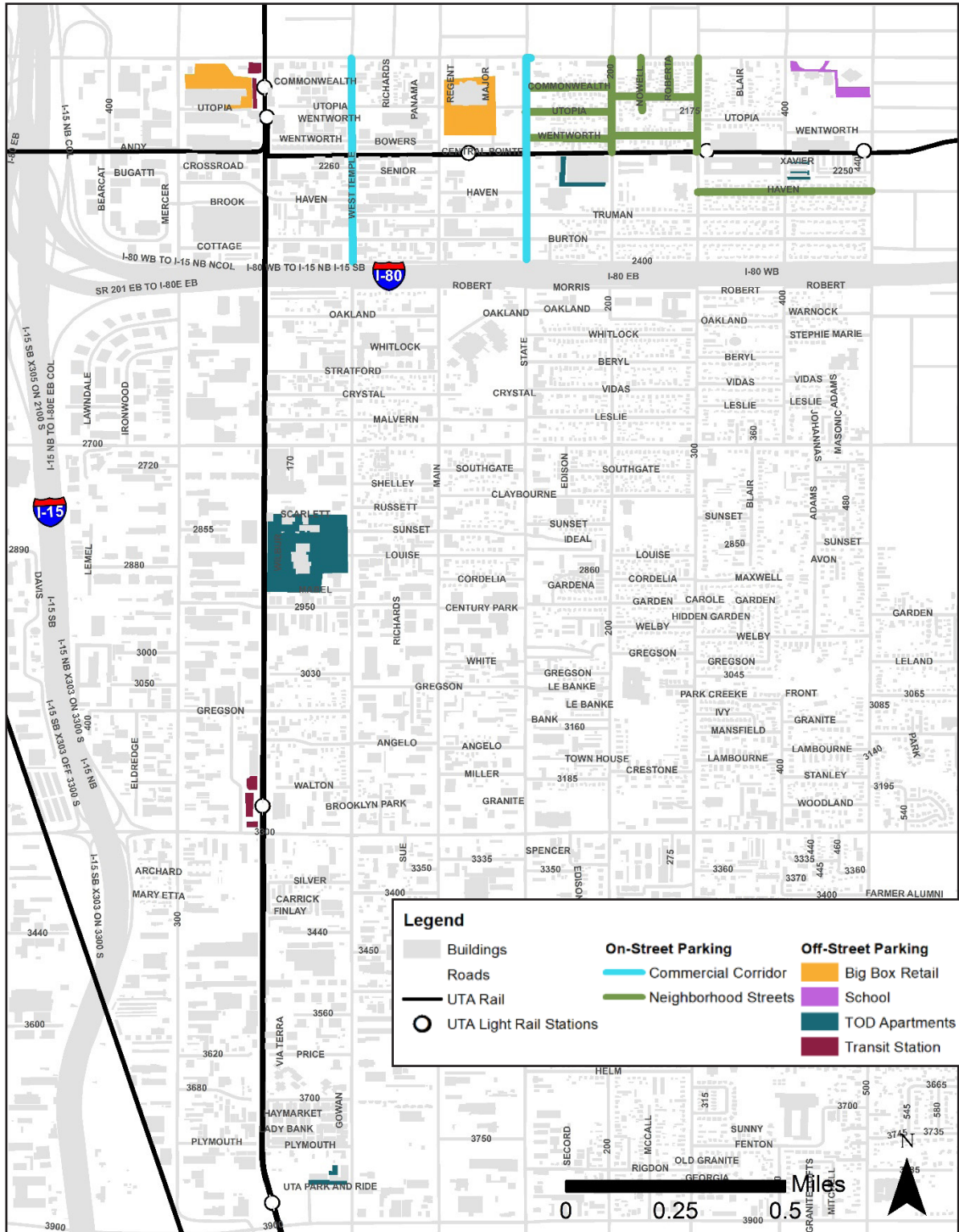
## South Salt Lake Parking Study Area

The map below in **Figure 1** displays the data collection area with the associated land use typologies that were studied.
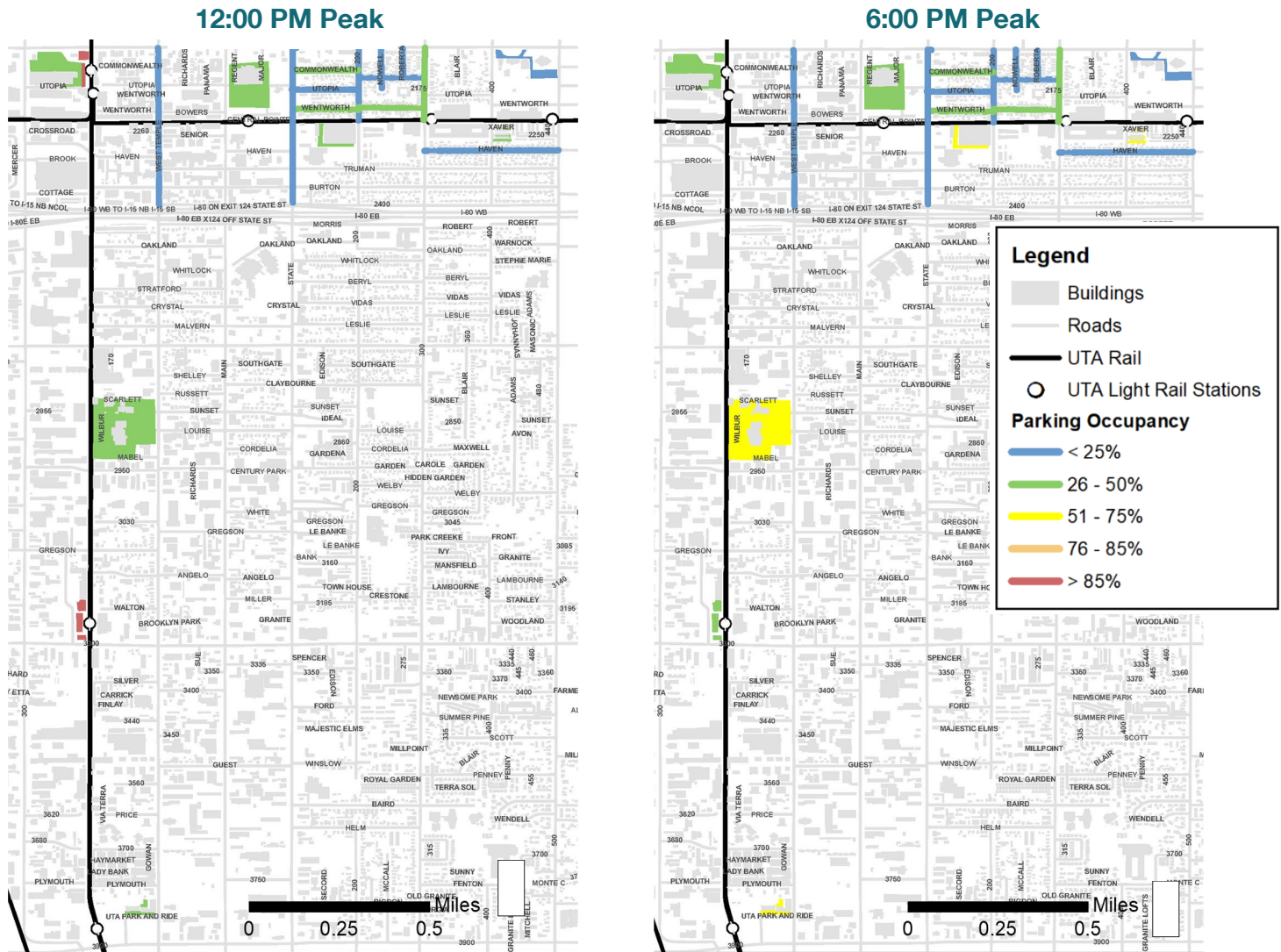
### Figure 1 – Study Area



**Legend**

| | | |
|---|---|---|
| Buildings | | |
| Roads | | |
| — UTA Rail | | |
| ⊙ UTA Light Rail Stations | | |

**On-Street Parking**
- Commercial Corridor
- Neighborhood Streets

**Off-Street Parking**
- Big Box Retail
- School
- TOD Apartments
- Transit Station

## Parking Occupancy

A combined parking occupancy for all sites observed was found to be at 12:00 PM and 6:00 PM, as shown in **Figure 2** below. The overall peak was not determined since the parking occupancy was being evaluated at specific sites rather than the entirety of the study bounds. The peak occupancy reached 31% occupancy where the 12:00 PM peak is driven by the demand of the transit station and where the 6:00 PM peak is driven by the parking demand of the housing land use as well as the big box land uses.

### Figure 2 – Peak Parking Occupancies



**12:00 PM Peak**

**6:00 PM Peak**

Legend
- Buildings
- Roads
- UTA Rail
- ○ UTA Light Rail Stations

**Parking Occupancy**
- < 25%
- 26 - 50%
- 51 - 75%
- 76 - 85%
- > 85%

## Parking Occupancy

The graphs below – **Figure 3** and **Figure 4** – present the parking occupancy trends for each land use typology by weekday and weekend, respectively.

### Figure 3 – Weekday Parking Occupancy by Land Use Typology
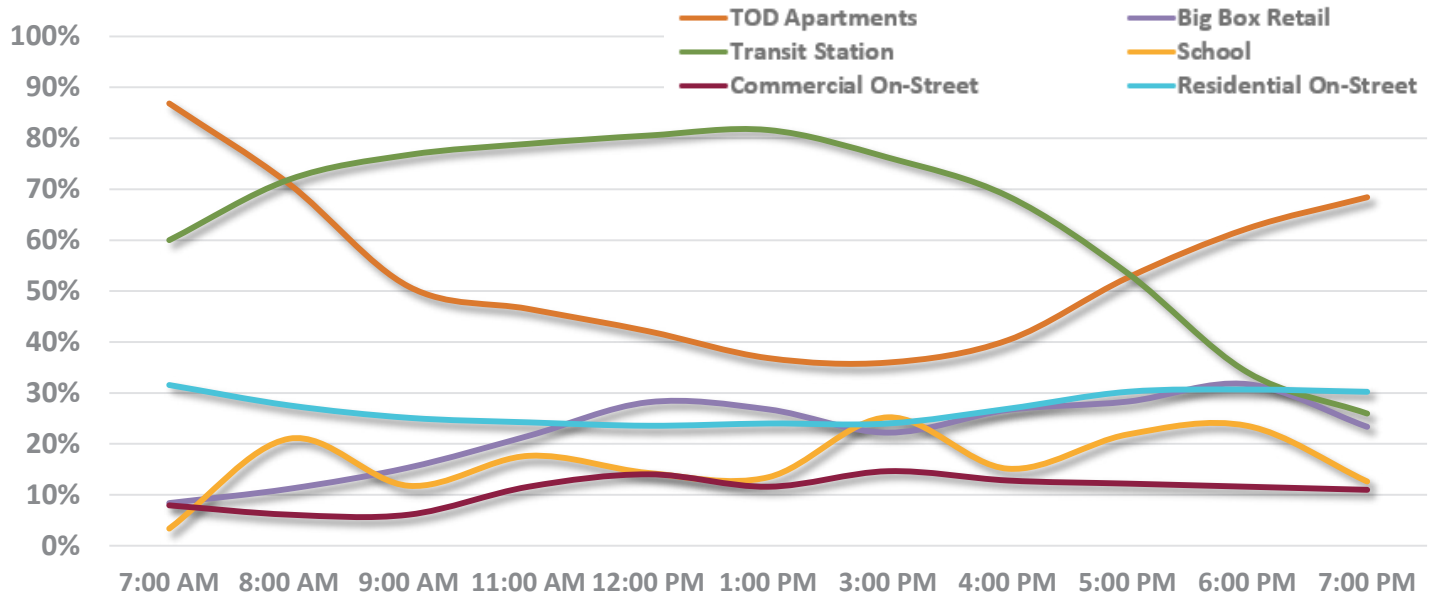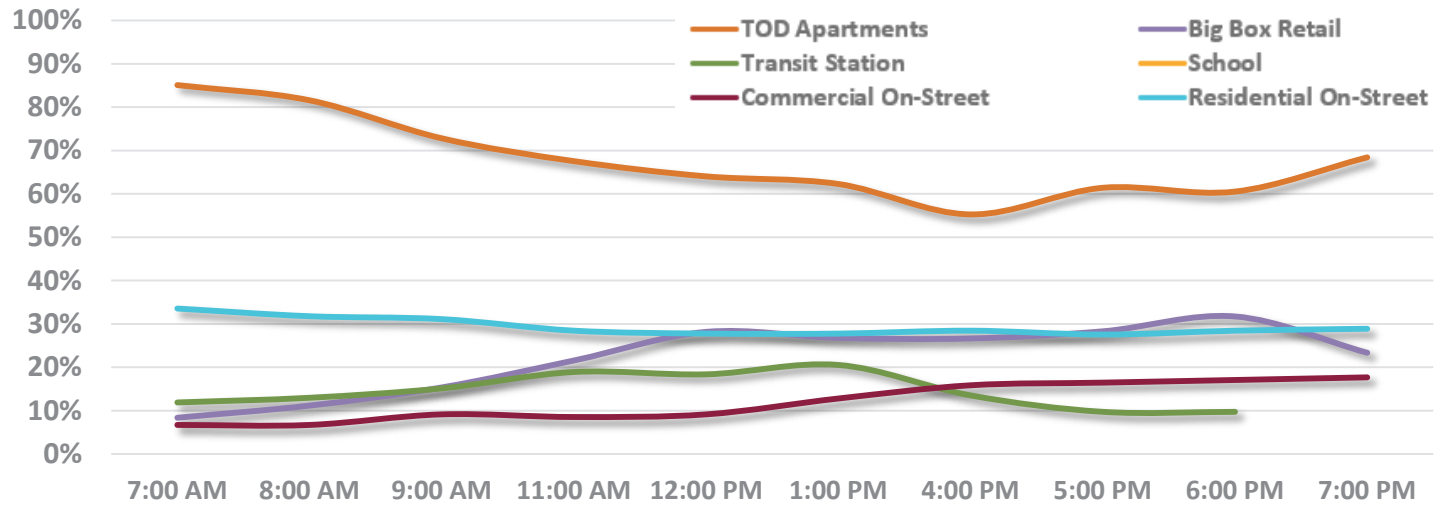


### Figure 4 – Weekend Parking Occupancy by Land Use Typology



The TOD apartments follow typical trends expected, being higher in the early morning and evening time on weekdays as well as on weekends. The transit station parking is highly utilized during work hours and sees reductions during evenings and weekends. Because of this, there is a potential opportunity for shared parking during these low-occupancy times. The City's TOD Modifications allow for right-size parking of developments – effective for housing but oversupply for retail. Parking associated with the school, big box retail, and on-street have a consistent low utilization.
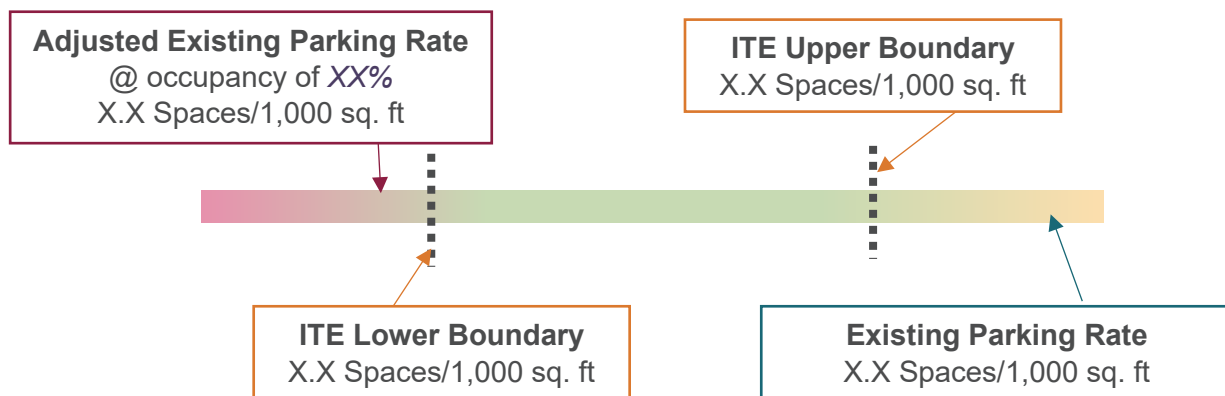
## Parking Standard Comparison

This section compares the observed parking occupancies, as described in the previous section, to what is required in the code (Existing Parking Requirement) and national standards as defined by the Institute of Transportation Engineers (ITE). For this comparison, the ITE Parking Generation, 5th Edition was used, as well as the Salt Lake City Code 17.06.160.
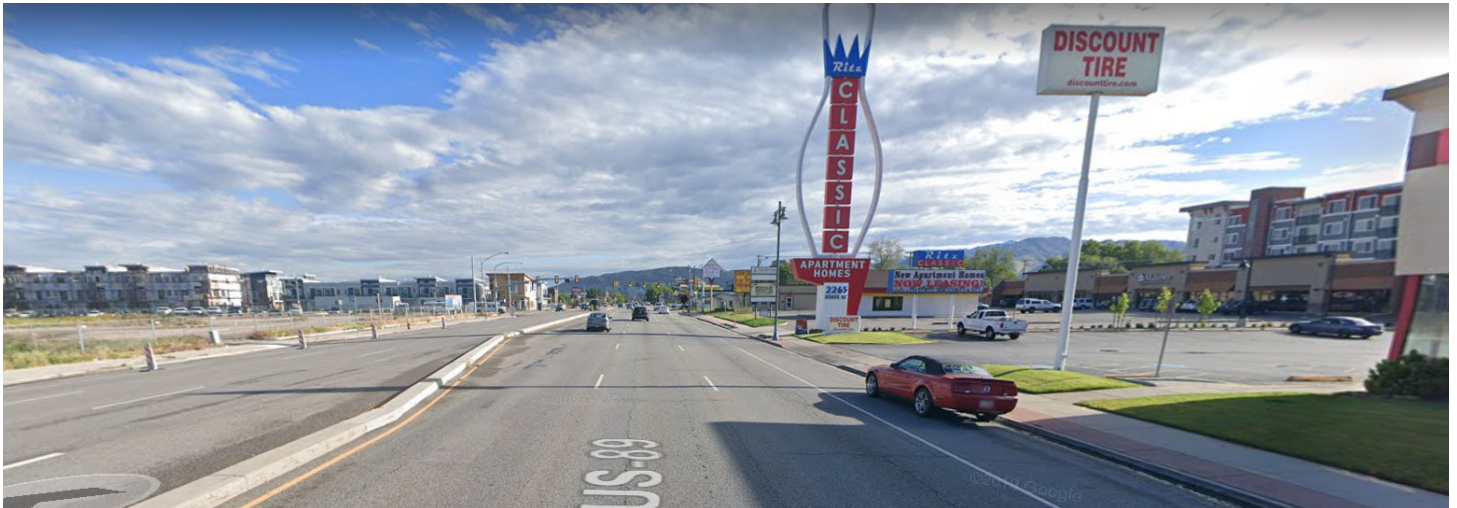
The following symbols are used to indicate whether the code for that land use provides adequate

| Symbol Key | | Impacts to Urban Form |
|---|---|---|
| **Balanced** | | The code is adequately providing parking. The parking system is balanced and allows for opportunity for continued growth |
| **Overparked** | | The code requires too much parking and is resulting in parking that is not used. The urban from is vacant and properties are disconnected. The land use is not being used to its greatest economic potential |
| **Underparked** | | The code does not require enough parking and results in spillover parking. New investments and development can be deterred because the parking availability is constrained |

In addition, each land use has a bar (like the example shown below) that depicts a range from underparked (red), optimum (green), and overparked (yellow). The upper and lower national (ITE) boundaries are shown to highlight the national optimum range for parking rates. The existing parking rate per City Code is shown on the graph and another callout point along the bar shows an adjusted existing parking rate. This adjusted rate is the point of optimal parking provided for that land use. It takes into account the observed occupancy and the 85% threshold.

**Adjusted Existing Parking Rate**
@ occupancy of *XX%*
X.X Spaces/1,000 sq. ft

**ITE Upper Boundary**
X.X Spaces/1,000 sq. ft

**ITE Lower Boundary**
X.X Spaces/1,000 sq. ft

**Existing Parking Rate**
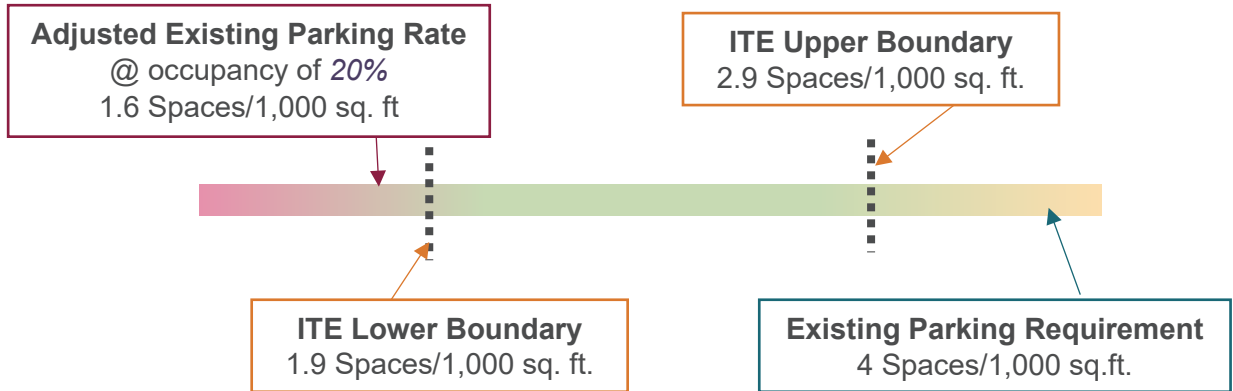X.X Spaces/1,000 sq. ft

## Commercial Corridor



A commercial corridor is a length of roadway that is lined with various types and sizes of commercial, retail, office, and service land uses. There is sometimes a small parking lot in the front of the building and perhaps in the back as well. The sizes of the buildings vary, but they are typically within 2,000 sq.ft. to 16,000 sq.ft. There may also be on-street parking adjacent to the buildings or a vehicle travel lane. The selected commercial corridor for this Study was along West Temple and State Street from 2100 S to I-80.

The observed parking occupancy for the Commercial Corridor land use typology saw a peak demand of 20%, showing that the parking is significantly underutilized. When examining the existing parking requirements for this type of land use in South Salt Lake, existing parking requirements were found to exceed national requirements set by ITE.

If the existing City rate was adjusted to reflect the 20% parking demand, at and the 85% threshold the resulting rate would be 1.6 spaces/1,000 sq. ft. This rate is below the national standard that ITE sets. This measure further shows that the current parking requirements in the Code not only surpasses ITE's recommended parking ratios but results in heavily underutilized parking and an excess of spaces.

**Adjusted Existing Parking Rate**
@ occupancy of *20%*
1.6 Spaces/1,000 sq. ft

**ITE Upper Boundary**
2.9 Spaces/1,000 sq. ft.

**ITE Lower Boundary**
1.9 Spaces/1,000 sq. ft.

**Existing Parking Requirement**
4 Spaces/1,000 sq.ft.

*The required parking rate for this land use should be adjusted, especially in higher-density areas or areas within a one to two block distance from the TRAX station, so that an oversupply of parking is discontinued.*
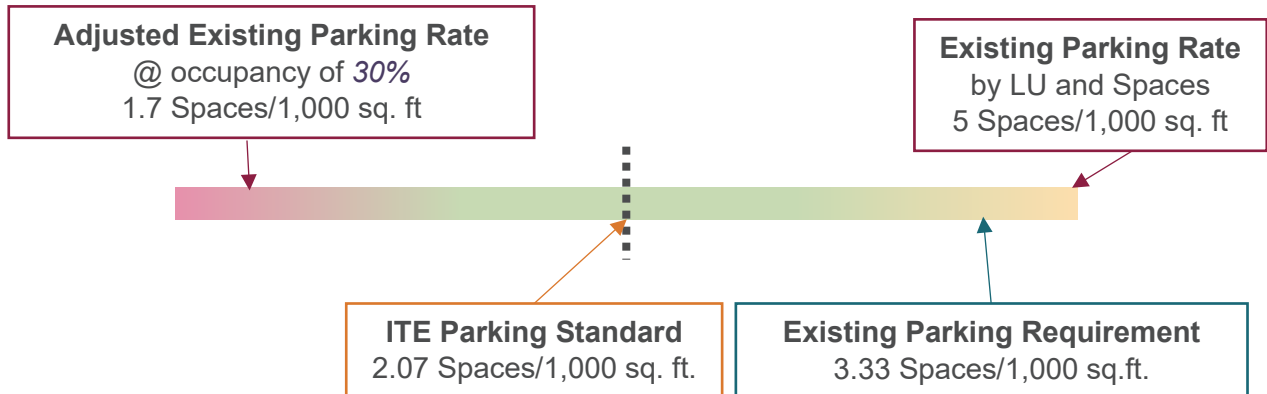
## Big Box Commercial



Big box commercial retail land use typology includes large single-use retail buildings, approximately 80,000 sq.ft. or larger. This use is characterized by having a large parking lot in the front of the building.

The Big Box Commercial land uses in South Salt Lake accounts for 82,600 square feet and 420 parking spaces, resulting in a parking rate of 5 spaces/1,000 square feet which exceeds both the ITE standards and existing parking requirement. The observed parking demand was 30%. Together, this data indicates that developers are building parking in excess of what is being required.

If the existing city rate was adjusted to reflect the 30% parking demand, and the 85% threshold, the resulting rate would be 1.7 spaces/1,000 sq. ft. This rate is below the national standard that ITE sets. This measure further shows that the current parking Code requirements not only surpasses ITE's recommended parking ratios but results in heavily underutilized parking and an excess of spaces.

**Adjusted Existing Parking Rate**
@ occupancy of *30%*
1.7 Spaces/1,000 sq. ft

**Existing Parking Rate**
by LU and Spaces
5 Spaces/1,000 sq. ft

**ITE Parking Standard**
2.07 Spaces/1,000 sq. ft.

**Existing Parking Requirement**
3.33 Spaces/1,000 sq.ft.

*The required parking rate for this land use should be adjusted, especially in higher-density areas or areas within a one to two block distance from the TRAX station, so that an oversupply of parking is discontinued. Another option would be to allow development in certain locations of the parking lot and share parking among the buildings to maximize the efficiency of the space.*

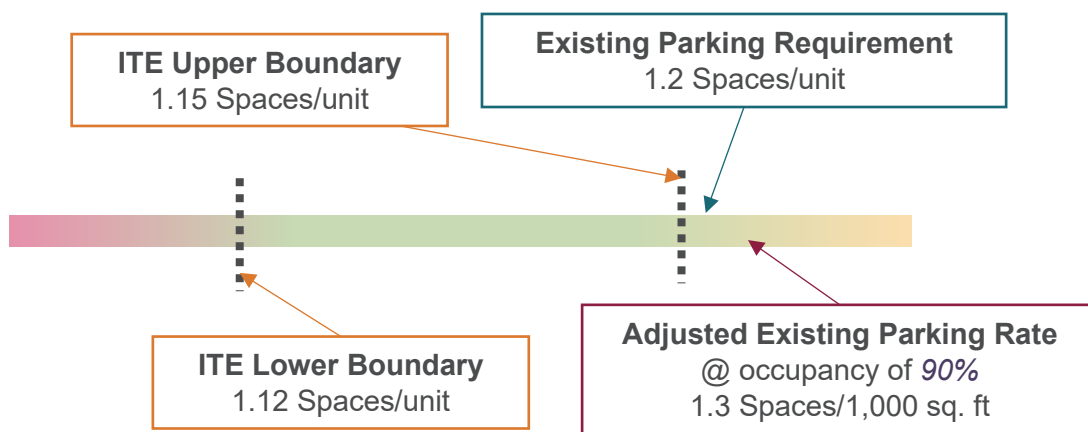## *Transit-Oriented Development (TOD) Housing*



TOD housing are residential condominiums or apartments or town homes that are usually developed at a higher density and located adjacent to or within one to two blocks of a transit station. These types of housing are usually offered a lower parking requirement because of the proximity to the transit station. The intent is to have residents use the transit station for their trips and rely less on a personal vehicle.

The observed occupancy for the TOD housing for this study was 90%. As discussed previously, this is an acceptable level of occupancy for residential land uses because residents are familiar with the parking on the site and will habitually park in the same location.

The parking requirement for TOD housing is greater than the ITE Parking Standard by 0.05 spaces per 1,000 spaces. With its proximity to the ITE standard, the parking requirement is adequate for this land use. If the existing city rate was adjusted to reflect the observed parking demand, the resulting rate would be 1.3 spaces/1,000 sq. ft.

**ITE Upper Boundary**
1.15 Spaces/unit

**Existing Parking Requirement**
1.2 Spaces/unit

**ITE Lower Boundary**
1.12 Spaces/unit

**Adjusted Existing Parking Rate**
@ occupancy of *90%*
1.3 Spaces/1,000 sq. ft

*The existing parking requirement for the City is found to be adequate for this land use. However, at a 90% parking occupancy at peak could warrant a need to increase the rate to 1.3 spaces/1,000 sq. ft. in the future as the population grows or if new TOD housing developments are constructed.*
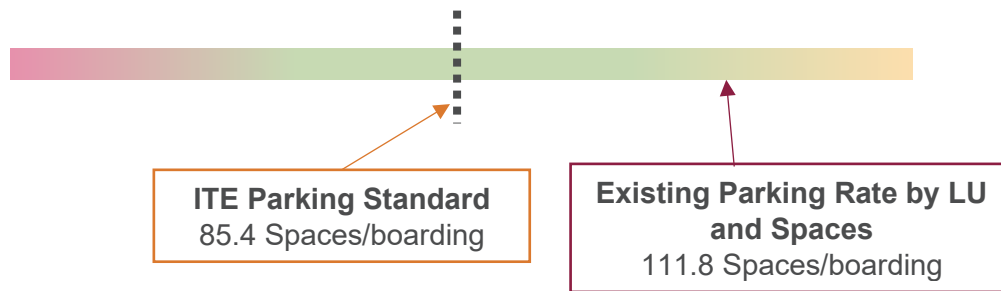
## *Transit Station*



The transit station land use typology is characterized by a large transit stop where multiple lines and types of transit (light rail, bus) converge. At the stops located in South Salt Lake, parking lots for transit riders are adjacent to the stops.

Three transit stations and their adjacent parking lots were observed as part of this Study. The peak parking demand was observed to be 80%, which is optimal demand for these sites. Unlike other land uses observed, transit stations often don't have a building size or density to calculate parking demand. Therefore, the number of spaces per boardings was used. Because this land use is considered to be within the optimum parking demand range, an adjusted parking rate was not calculated.

**ITE Parking Standard**
85.4 Spaces/boarding

**Existing Parking Rate by LU and Spaces**
111.8 Spaces/boarding

*The existing city parking requirement for transit stations is found to be adequate and no recommended changes are suggested.*
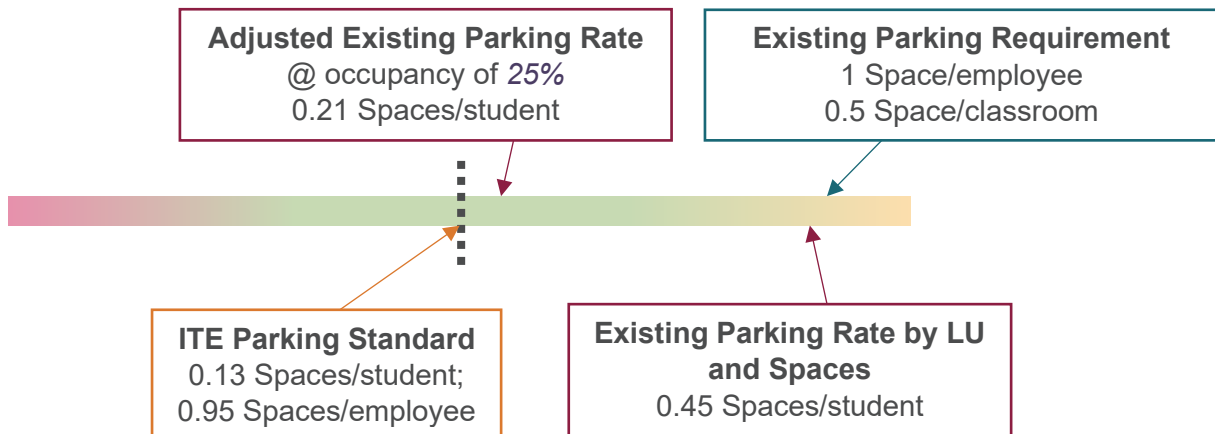
## School



Compared to other land uses, schools operate differently. They have morning and early afternoon peaks when students are dropped off or picked up. During this 20- to 30-minute time period there is typically heavy congestion as. However, the parking demand is not typically high because it is usually faculty and staff only who are parking, with some visitors, deliveries or maintenance as well.

The observed parking demand during the peak hour was 25%, indicating that the current parking is underutilized. Furthermore, the existing parking rate for the schools in South Salt Lake exceeds the standards set by ITE, indicating that the requirements for this land use are oversupplying parking. Many schools in South Salt Lake were built decades ago and parking supply and demand varies widely. Many students ride buses or walk due to the lower incomes found in the city as well.

If the existing city rate was adjusted to reflect the 25% parking demand, taking into account the 85% threshold so as not to maximize parking, the resulting rate would be 0.21 spaces/student.

**Adjusted Existing Parking Rate**
@ occupancy of *25%*
0.21 Spaces/student

**Existing Parking Requirement**
1 Space/employee
0.5 Space/classroom

**ITE Parking Standard**
0.13 Spaces/student;
0.95 Spaces/employee

**Existing Parking Rate by LU and Spaces**
0.45 Spaces/student

*The required parking rate for this land use should be adjusted so that an oversupply of parking is discontinued.*

## South Salt Lake Supporting Ordinances

Other policies within the Code impact the amount of parking that is required. On a case-by-case basis, agreements can be made between property owners to share parking or modify requirements if a property to be developed is in the designated TOD area. A summary of both of these policies are provided below.

The following existing ordinances support the parking initiatives of the City of South Salt Lake.

- Shared Parking (17.06.160.D). Two or more uses to share the same parking lot if they have different parking patterns and peak demand hours. If there are different owners, parking must be within 300 feet from the nearest entrance to each use.
- TOD Modification (17.06.160.E). Modifications to required parking are allowed per a parking and traffic study that includes use, hours of operation, and anticipated parking demand. The ordinance requires ¼-mile of a light rail station and if the developer provides two of the following: pedestrian connectivity, car/vanpool program, secure bike parking, or transit subsidies to tenants and employees.
  - Residential: Reductions range between 0.05 to 0.2 stalls/units for providing the above listed elements
  - Commercial: 20% of reduction if sharing parking, mixed-use development, and the above listed elements

**Findings**

- Adjust parking rates to right-size parking:

| Typology | Recommended Change to the Parking Code |
|---|---|
| Commercial corridor | adjust from 4 spaces/1,000 sq. ft. to 1.6-2 spaces/1,000 sq. ft. |
| Big box commercial | adjust from 3.33 spaces/1,000 sq. ft. to 1.7-2 spaces/1,000 sq. ft. |
| TOD housing | maintain current rate |
| Transit station | maintain current rate |
| School | adjust from 0.5 spaces/classroom to 0.13-0.2 spaces/ student |

- Adjust the shared parking ordinance to increase the walking distance to 1,000-1,300 feet to allow developers to utilize existing underutilized parking rather than building more private parking.
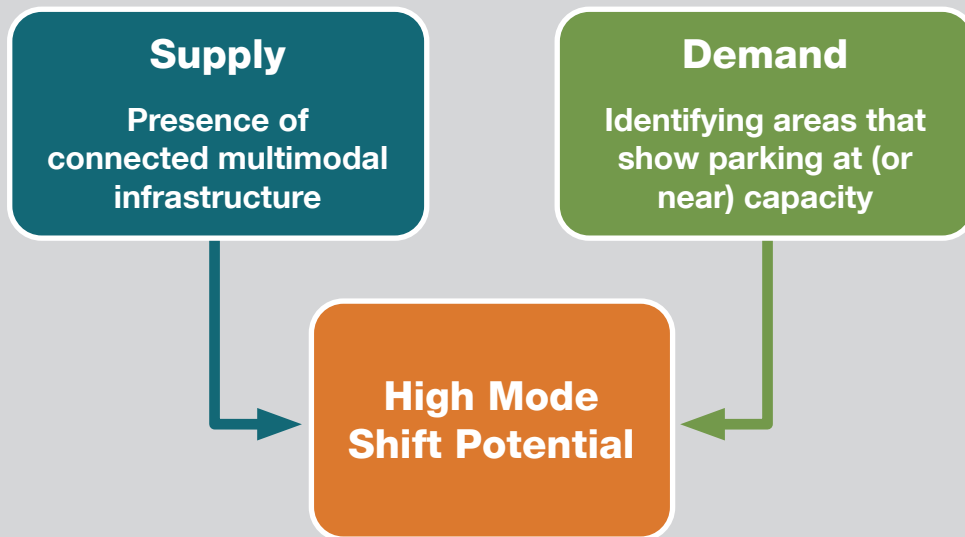
# 4. Transportation Demand Management

# 4. Transportation Demand Management

Transportation Demand Management (TDM) strategies provide people with a variety of mobility options rather than driving alone in a personal vehicle. The intention behind TDM is to reduce vehicle miles traveled (VMT) and congestion, as well as gain environmental, conservation, and sustainability benefits. These strategies often do not require large infrastructure investments.

TDM also includes a "Park Once" mentality. This means you drive to the Downtown area, park in a single location, and are then able to visit many locations in a single visit. You don't get back in your car and re-park to visit a store, then a restaurant, then run an errand. There are sidewalks, bikes, scooters, other means that help you move in the area that don't require a personal vehicle.

TDM strategies are most successful in areas where new mobility technologies can be more strategically leveraged and where parking supply management can be successfully modernized.

## Components for Influencing Mode Shift

**Supply**

Presence of connected multimodal infrastructure

**Demand**

Identifying areas that show parking at (or near) capacity

**High Mode Shift Potential**

TDMs include a wide variety of strategies. The city is advised to review each for its effectiveness in each unique situation and location.

- Guaranteed Ride Home
- Shuttles
- Wayfinding and Branding
- Teleworking
- Remote school options
- Compressed or Flex Work Schedules
- Restricted Parking
- Bike/Walk Subsidy
- Transit Subsidy

- Carpool Incentives
- Parking Fees
- In-Kind Incentives
- Bike/Pedestrian Infrastructure
- Traffic Calming
- Passenger Loading Areas
- Alternative Mode Visibility
- Land Use Changes

## TDM Potential & Parking Occupancy

The map shows the observed parking occupancy at the locations in the study area as well as density of land uses and access to alternative transportation modes. The areas in the four circles are the areas where there is greatest potential to encourage TDM strategies because of the combined factors of higher parking occupancy and access to alternative modes of transportation.

**Figure 5 – South Salt Lake TDM Mode Split Potential and Parking Occupancy at 12pm Peak**
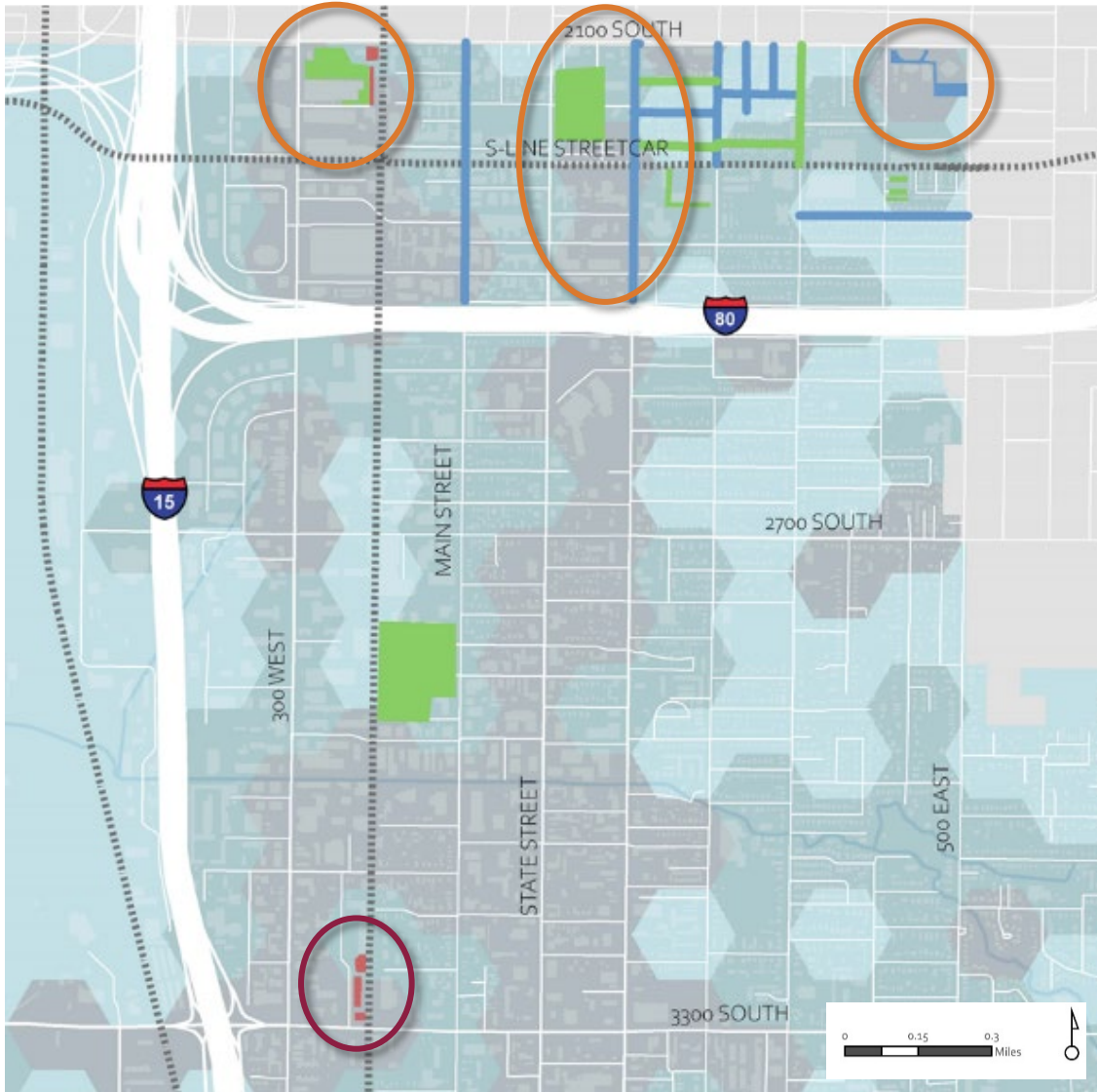


The parking facilities highlighted by an orange oval represents areas that show high demand and low parking occupancies. In these locations, it is possible for parking reclamation to occur. The parking facility highlighted by the red oval shows an area with high demand and a resulting high parking occupancy.

The TDM analysis for South Salt Lake has identified areas that have the potential support other modes of transportation, rather than a personal vehicle, and therefore potentially have success with implementing TDM strategies. Because of this, there may be opportunity to implement future-looking TDM policy to allow the City to get ahead of demand before it occurs. Establishing benchmarks that trigger the application of TDM strategies may be another approach to utilizing the potential seen in these areas.

# 5. Peer Cities

# 5. Peer Cities

As part of this project, best parking management practices were identified through discussions with peer cities. Six peer cities were selected based on what practices they could share that would be applicable to Ogden and the project partners. Peer cities were selected with robust and active parking programs, are facing similar challenges, have similar development environments, and in similar stages in developing a parking program as many communities are across the Wasatch Front region. A more detailed overview of the discussion can be found in **Appendix A** of this document.

Representatives from Park City (UT), Salt Lake City (UT), Boise (ID), Beaverton (OR), and Gresham (OR) participated virtual roundtable.

- **Boise:** The CCDC organization is responsible for Boise's urban renewal, which includes eliminating blight, stimulating economic development, and managing parking. Boise has made a commitment to be the premiere place to live in the Treasure Valley and CCDC takes that commitment seriously. Participants included Max Clark and Matt Edmond of Boise CCDC.

- **Salt Lake City:** Parking for Salt Lake City is split into two major pieces: transportation, which is responsible for planning and studies and compliance, which handles parking enforcement. The participant included Jorge Chamorro of Salt Lake City.

- **Beaverton:** They do not currently have much enforcement and the role of parking manager is new, and that position sits within the community development department, which works closely with existing enforcement. The densest area of town is the downtown core with an occupancy rate around 85% and there is a plan to build a new parking garage adjacent to a regional theatre. There are no substantive parking regulations outside of downtown. The participant was Molly Rabinovitz of Beaverton.

- **Gresham:** The City has never had parking enforcement due to limited resources and the lack of political will to create a paid parking program. They are not at the point of demand to require a formal parking program, but occupancy is telling them it is time to start planning for one. Gresham is experiencing an influx of new development in the downtown core and they are approaching a 75% occupancy tipping point that will require them to implement time limits. Participants included Katherine Kelly and Jay Higgins of Gresham.

## Key Takeaways

- Build a strong and open relationship with developers. Include their perspective in larger projects and major changes, such as revision of the codes.

- Implement paid parking only when the data dictates the need for change with consistently high parking demands. Before making the change, communicate the intentions with the public. Know their preferences and concerns and discuss them. It may be beneficial to offer incentive programs at first, such as a first hour free program.

- Include a standard shared parking procedure as part of land use processes for property owners.

- Micromobility solutions are challenging because the infrastructure is hard to define – cities value safety but don't want the technologies to become obsolete and even then, the microtransit may not be the issue, it may be the vehicles operating with them simultaneously.

# 6. Lessons From Developers

# 6. Lessons from Developers

After hearing from the peer cities, the Steering Committee met with a developer, active in both the region and other parts of the country, to have a more in-depth discussion from the developer perspective.

The biggest takeaway from the developer discussion is the idea that parking is always a moving target and it takes continuous effort to make sure it is being optimized for a community.

Developers face two critical considerations when making decisions: 1) affordability and 2) marketability.

Parking is a cost for developers, and it is a constant balance between providing enough parking for the intended tenant while also not increasing the cost of the project. Costs vary by type of parking provided and costs in the Wasatch Front Region are reflected below:

- Surface Lot - $12,000-$15,000 per space
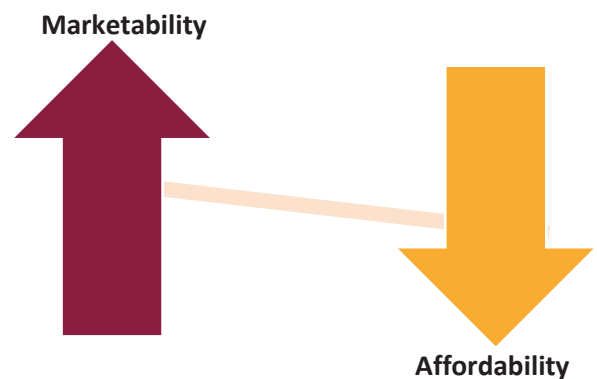- Structure - $15,000-$30,000 per stall
- Underground - $40,000 per stall

Each space added to a project directly impacts the cost of rent. For instance, for a surface stall equates to an additional $75 per month to cover the cost of that parking stall. Furthermore, developments in more urbanized areas are more expensive than in suburban or rural areas, generally. Having additional costs for parking decreases opportunities for affordability.

Developers will adhere to the requirements put forth in a municipality's code. However, sometimes these codes do not reflect the impacts of a connected transportation network. Developers determine the right balance for parking in their projects. Finding the ideal parking ratio while providing adequate parking is a challenge to each project. Many developers will studiously and repeatedly perform occupancy counts on their properties to determine the appropriate ratio based on type of development, development setting, market, size, and proximity to transit. A typical breakeven point for parking is 80% occupancy, which generally aligns with the optimal parking occupancy thresholds described in the Parking Study Performance Metrics section of this report. This data can be used to help justify a deviation from a municipal parking requirement and to help plan accordingly for the next development.

The second main consideration for developers is marketability. There needs to be enough parking provided to support the leasing of space. Developers cannot lease apartments or commercial/office space if there are not enough parking spaces for tenants. However, as discussed, the more parking spaces provided, the greater the impacts to the cost of the project, and therefore rents.

In conclusion, anything that encourages marketability (more parking spaces for tenants) discourages affordability (adding more spaces increases the cost of rent).
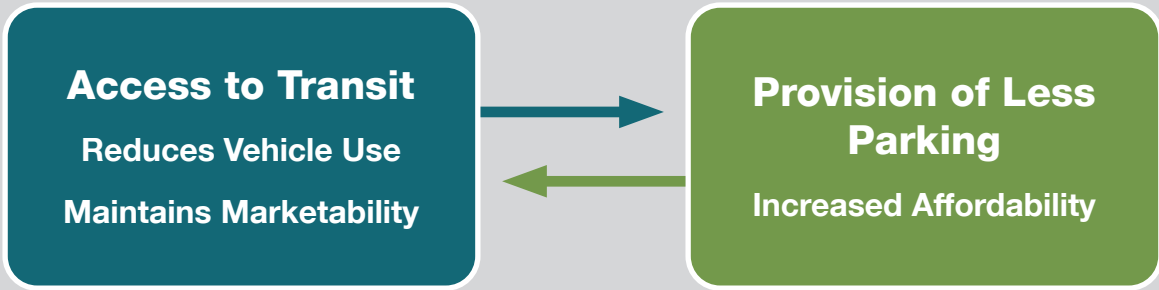
Developers see changing mobility trends from personal vehicles to multimodal opportunities. According to AAA data, the average individual spends approximately $900 per month to own an average, reliable, fuel-driven car. This includes the cost of gas, maintenance, registration, and insurance. Over the years, there has been a trend of people owning fewer cars. The reduced ownership of cars impacts the need to provide more parking for developments.

**Marketability**

**Affordability**

This trend is most prevalent in urban areas where fewer people rely on and own a personal vehicle. In an urbanized setting, a ratio of one car per three apartment units is typical for the developer. If the apartment building is in close proximity to transit (within a one-to-two-block walking distance), then the ratio is 1.2 cars per unit. Residents will let go of their second vehicle if they have easy access to transit. In a suburban setting, the ratio is 1.1 to 1.2 cars per apartment unit depending on the unit mix.

Access to transit is a major factor in balancing the marketability and affordability concerns. Having access to transit, as stated, can encourage renters to let go of one of their vehicles. This means that the next apartment development can plan to provide less parking per unit while still being able to lease their apartments. Less parking means more affordable rents.

| Access to Transit | Provision of Less Parking |
|---|---|
| Reduces Vehicle Use | Increased Affordability |
| Maintains Marketability | |

An important takeaway from the conversation is that developers should be included in conversations regarding parking requirements and incentives. Since each community is different, there is no one simple solution for meeting developer needs and community needs. Open and frequent conversations to build strong relationships with the development community is key to successful growth that aligns with the community's plans and goals.

# 7. Recommended Strategies for South Salt Lake

# 7. Recommended Strategies for South Salt Lake

The final sections of the report are divided into the following topics.

## Recommended Strategies

Description of each strategy along with benefits, challenges, steps for continued implementation. and identification of complimentary strategies

## Data Collection - Methods and Metrics

Identifies data that should be collected, why it should be collected, how to use each of the data metrics, and alternative methods for collecting data

## Implementation Timeline

Matrix that indicates when strategies should be initiated and frequency of monitoring the strategy to initiate the next implementation step

The recommended strategies for South Salt Lake are broken into three parking management strategy categories, as shown here.

### Practices and Polices

- Update and Right-Size Parking Requirements
- Efficient Enforcement Practices
- Manage Transit Station Parking
- Proactive Curb Lane Management
- Data-Based Decision-Making
- Develop an Annual Parking Report

### Manage Parking Assets

- Flexible Shared Parking
- Repurpose Underutilized Parking
- Parking Permit Program
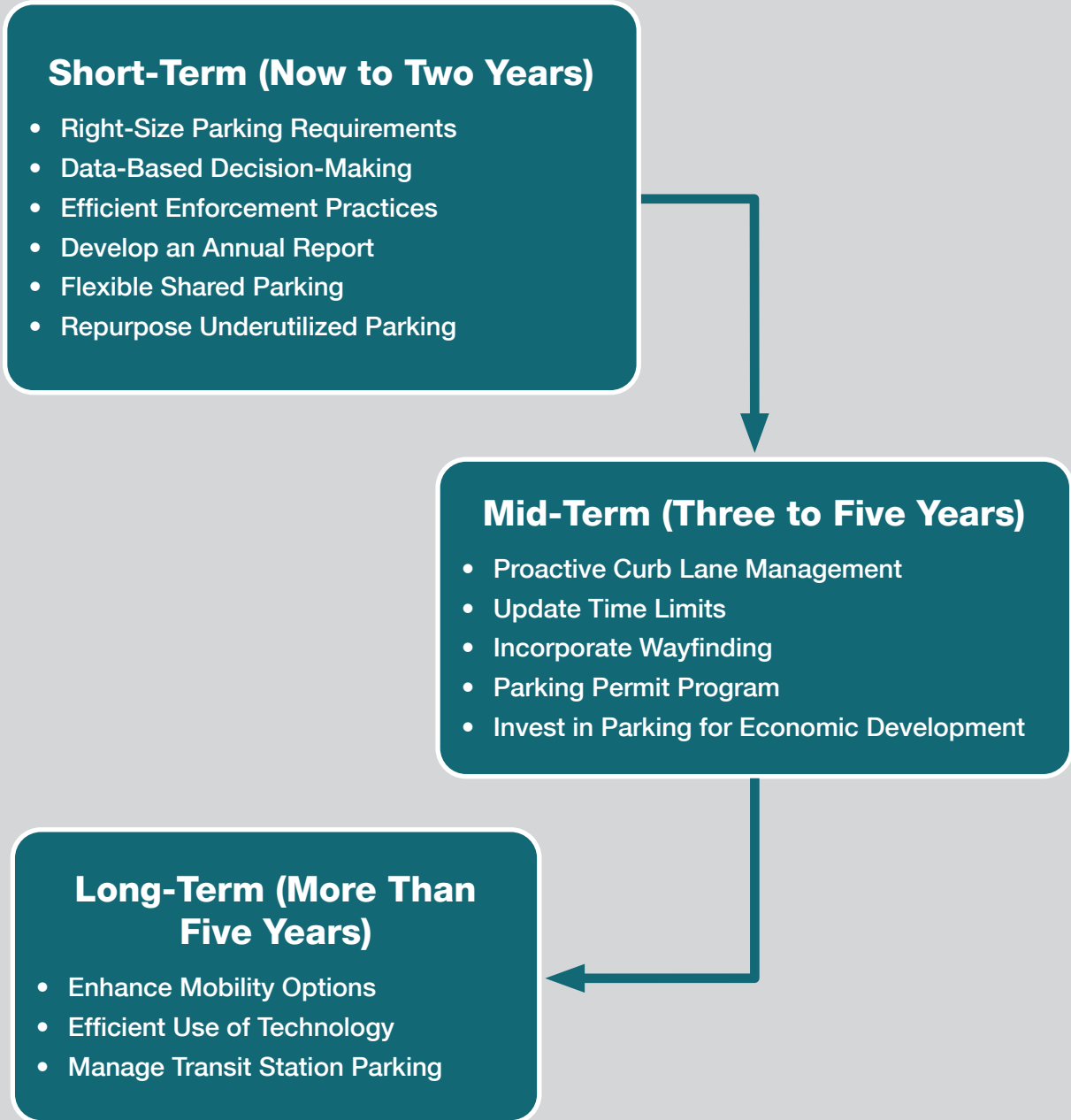- Invest in Parking for Economic Development

### Manage Parking Demand

- Update Time Limits
- Incorporate Wayfinding
- Efficient Use of Technology
- Enhance and Leverage Mobility Options

The intention of the categorization is to group similar recommendations based on how they manage parking. However, it is also important to understand the implementation priority of each recommended strategy. The initial implementation of each strategy is presented below. However, the Implementation Timeline that concludes the report indicates the frequency of monitoring for continued implementation. The specific timing of continued implementation for each strategy is contingent upon the year-over-year data collection and analysis. The data will help drive implementation decisions and timing. It is also important to note that once initiated, each strategy will continue to evolve into the next planning horizon and beyond.

## Short-Term (Now to Two Years)

- Right-Size Parking Requirements
- Data-Based Decision-Making
- Efficient Enforcement Practices
- Develop an Annual Report
- Flexible Shared Parking
- Repurpose Underutilized Parking

## Mid-Term (Three to Five Years)

- Proactive Curb Lane Management
- Update Time Limits
- Incorporate Wayfinding
- Parking Permit Program
- Invest in Parking for Economic Development

## Long-Term (More Than Five Years)

- Enhance Mobility Options
- Efficient Use of Technology
- Manage Transit Station Parking

## Strategies for Practices & Policies

This subsection describes recommendations that will initiate programmatic changes to support the parking management program. The recommendations within this bucket are below.

| | | |
|---|---|---|
| **Update and Right-Size Parking Requirements** | **Efficient Enforcement Practices** | **Manage Transit Station Parking** |
| **Proactive Curb Management Policies** | **Data-Based Decision-Making** | **Develop an Annual Report for Parking System** |

## Update and Right-Size Parking Requirements

Parking codes often require too much parking for an urbanized area. Some reasons include people that park once and walk to multiple destinations, use multimodal options more readily, or choose not to use a vehicle to get around. Updating and right-sizing the Code ensures that new parking supply associated with new development matches the demand. Adjustments would include parking requirements, shared parking policies, and separate downtown and TOD parking requirements.

**1** Establish a committee with city planners, transportation planners, and developers and lenders to meet regularly (once a year to start). Keep an open dialogue on barriers and opportunities for development within South Salt Lake.

**2** Adjust the current parking rates to the recommended rates suggested on pages 20-25 of this report.

Differentiate parking ratios for small retail and big-box retail land uses.

**3** Adjust the shared parking ordinance to raise the walking tolerance from 300' to 1,000'. See the Shared Parking recommended strategy.

**4** Evaluate parking demands annually for both public and private parking to establish trends.

**5** Evaluate shifting code for downtown and TOD areas to a more flexible option such as:

- minimum/maximum combination
- maximum only
- no parking restrictions

Benefits:

- Creates a balanced parking system that can accommodate the needs and vision of the City.
- Reduces subsidization of auto trips.
- Increases reliance on centralized parking system.
- Reduces underutilized restricted parking.
- Encourages infill development as well as multimodal transportation.
- Reduces the cost of development, which also increases affordability for tenants.

Challenges:

- Design guidelines should require features to enable bike and pedestrian travel to and around new development
- This strategy should be partnered with annual monitoring of parking demands. Evaluate making major changes on a five to ten-year cycle, reflecting the data, land use trends, and developer and lenders needs. More frequent changes create confusion and mistrust.
- Public backlash if parking proves inadequate is a risk.

### Complimentary Strategies

- Repurpose Underutitlized Parking
- Transit-Oriented Development
- Shared Parking

## Efficient Enforcement Practices

Enforcement is a critical component of any parking system. People will only comply with parking regulations and rules if they believe they are enforced. Ideally, enforcement should monitor the areas with regulations as frequently as those regulations dictate. For instance, for an area with two-hour parking time limits, enforcement should check every two-hours each day during regulated hours. This can be daunting in terms of budget and staffing when the parking areas are widespread. However, a sporadic enforcement can be an effective means without having to massively increase staff. Gradually, over years, the enforcement program can expand. This will usually come when the program includes paid parking or other forms of revenue to support the increased staff. Action items for this strategy include:

**1** Establish a partnership or committee with law enforcement to discuss parking concerns and opportunities. Keep both parties informed on parking actions and decisions. The group can plan changes together.

**2** Compile any existing enforcement logistics (e.g.,. areas covered, number of enforcement officers, protocols and procedures, responsibilities of enforcement staff, and budgets).

**3** Establish fee structures for citations. This may include Warnings for first time offenders, graduated fee structure for repeat offenders. Include a graduated fee structure for payment of citations that raise the fine the longer the bill is unpaid.

**4** Establish performance measurement tools and standards for communicating data collected:
- Frequency of violations by type
- Capture rate (20% rate wanted)
- Location of violations by type

**5** Pilot test changing enforcement practices so that sporadic enforcement is conducted.

Create a staggered route and schedule them so each area is covered, but it is not predictable.

**5** Consider an ambassador style approach to enforcement as the program expands.

Benefits:
- Establishes a culture of compliance with parking regulations.
- Enforcement practices can produce key indicators and data for monitoring the parking system effectiveness.

Challenges that should be considered when implementing this strategy include:
- Enforcement must be frequent and consistent.
- Requires adequate signage and notices that allow users to know what is required to park properly.
- Effective communication for rollout of program.
- Potential public backlash.

### Complimentary Strategies
- Shared Parking
- Udate Time Limits
- Wayfinding

## Manage Transit Station Parking

Managing transit station parking supports and encourages transit ridership by preserving adequate parking spaces for transit users. Management of transit parking should only occur once the parking occupancy has reached effective capacity of 85% or higher for at least two weekdays on differing weeks. Management strategies can vary from station to station depending on the goals and characteristics of that station. This is a long-term strategy and is requires more detailed analyses than this study performed to determine the need and appropriate level of parking management. Action items for this strategy include:

**1** Monitor and assess the parking occupancy, parking duration, and ridership at the transit stations within the City. Conduct a survey of riders and those parking.

**2** Partner with transit providers to ensure they are supportive of data necessary to determine the transit station activity (ridership by station, by time of day, by day of the week, and by month of the year).

**3** Invest in improvements for bicyclists and pedestrians to the transit station. Improvements should focus on enhanced connectivity, such as new paths or routes, lighting, seating, parking, wayfinding signage, etc.

**4** Once parking occupancy reaches or exceeds 85% occupancy, implement restrictions that encourage commuters only between morning peak hours and open to the public after that time. Use permits to regulate. The partnership with transit providers will help establish price for permit (if any), and other protocols.

**5** Continuous monitoring and evaluation of the parking for transit stations. Share and discuss the findings with the transit providers through the partnership. Make adjustment as needed based on data metric.

Benefits:

- Reduces per capita vehicle travel.
- Encourages transit and non-motorized travel.
- Supports affordable housing and diverse land use mix.
- Opportunity to incorporate parking technology to enhance rider experience – such as real-time parking availability within a transit smartphone application.

Challenges:

- Balancing ridership discouragement and/or spillover parking into surrounding neighborhoods-
- High transit ridership is a necessity before implementing parking regulations.
- Potential to deter transit use if it becomes difficult or expensive to park.
- (This last one seems like a strategy not a benefit) Work with transit providers to set any price associated with permits or paid parking. Any costs for transit users must be balanced with the cost of a transit pass.

### Complimentary Strategies

- **Leverage Mobility Options**
- **Update Parking Requirements**
- **Shared Parking**

## Proactive Curb Lane Management

Demand for curb space is increasing as cities work to balance demand from transit stops, on-street parking, truck loading/unloading, personal deliveries (such as package delivery such as UPS, FedEx, and Amazon, and food delivery services such as GrubHub), dockless, on-demand mobility devices such as bikes and scooters, emergency services, streetscape amenities, and other users. All these users want free and unimpeded access to curb space. Cities must operate and manage the curb much like other public resources, to effectively provide access for a variety of users, while optimizing overall public benefit.

| | Residential | Commercial & Mixed Use | Industrial |
|---|---|---|---|
| 1 | Support for Modal Plan Priorities | Support for Modal Plan Priorities | Support for Modal Plan Priorities |
| 2 | Access for People | Access for Commerce | Access for Commerce |
| 3 | Access for Commerce | Access for People | Access for People |
| 4 | Greening | Activation | Storage |
| 5 | Storage | Greening | Activation |
| 6 | Activation | Storage | Greening |

*Source: http://www.seattle.gov/transportation/projects-and-programs/ programs/parking-program/parking-regulations/flex-zone/curb-use-priorities-in-seattle*

Cities, such as Seattle, have implemented curb management programs to manage the curb uses. The graph to the right demonstrates their curb use priorities by street-type.

Implementing policies for proactive curb management will involve determining priorities for each stretch of curb and often varies by street, block or face. Action items for this strategy include:

**1** Compile and review existing curb management policies and practices. Map out and understand how all curb uses in the city are regulated. If they are conflicting, identify ways to get them aligned.

**2** Develop curb lane priorities for different street types, as demonstrated in the example chart from Seattle DOT on this page.

**3** Produce a strategy for curbside management to guide decisions around the curb supply and use.

**4** Conduct a pilot study to test optimal curb uses based on the priorities and framework established. Incorporate findings of the pilot into the policy and implement curb uses.

**5** Monitor and make changes or additions as data from analyses and community feedback dictates.

Benefits:

- Efficiently prioritizes competing curb uses by location, day of week, type of user, and time of day.
- Articulates objectives for different curb uses and different parts of the city.
- Outlines when, where, and how to implement changes to curb use designations.

Challenges:

- Involves significant and transparent coordination with business owners, public, and other stakeholders.
- May need to change as land use and road users change.

### Complimentary Strategies

- Shared Parking
- Udate Parking Requirements
- Parking for Economic Development

## Data-Based Decision-Making

One of the central tenets of parking and mobility management is using system data to support better policy and practice decisions. These should support the intended vision and outcomes of the program and the community. This will include the frequent collection of data, ongoing analysis of data, and use of performance metrics and thresholds to define when and how to make changes. Specific data collection mechanisms are described in the last section of this report. The city should commit to making data the foundation for all parking decisions made to be fair, objective, and proactive. Action items for this strategy include:

**1** Conduct a comprehensive parking occupancy data collection effort to establish a baseline for cataloguing parking inventory and occupancies. Inventory should include the type of facility (on-street, lot, garage), ownership (public or private), number of spaces for each facility or block, and any regulations (time limits).

**2** Use this study recommendations to define data thresholds, location characteristics, and intended policy outcomes.

**3** Establish protocols, expectations, and methodology for annual data collection and analysis to define impacts of performance.

**4** Create analysis and reporting templates that can be used annually or as frequently as desired. The template and analysis should be folded into an annual report on parking.

**5** Define intervals for adjusting the system (annually, semi-annually, quarterly, etc.) Combine with marketing and education campaign when changes are made.

Benefits:
- Improves the ability to track the impact of changes made to the system.
- Improves communication and marketing
- Establish trusted, baseline metrics for making year-over year transportation and mobility enhancements. This assists in policy-making and consistency.

Challenges:
- Care in establishing a data collection process to create consistent sets of data and meaningful analysis for the long-term.
- Ongoing, consistent funding is required.

### Complimentary Strategies
- All Recommendations

## Develop an Annual Report for Parking System

An annual report to assessment of parking facilities in the city ensures that the system is consistently being analyzed. Many strategies need to be monitored annually to determine their impacts and whether or not adjustments need to be made. A commitment to this process is a great way to consistently monitor and manage year over year. Action items for this strategy include:

**1** Identify key report goals and overarching topics for including setting the scene (existing conditions), innovation/ new developments, education and enforcement, and finance.

Identify who will review the report and how program recommendations are proposed.

**2** Develop a storyboard template that outlines report sections based on defined topics, graphics to be used, and maps and tables to communicate results.

**3** Identify what data collection and analyses are necessary to produce the report based on the storyboard.

**4** Produce a report outline with the goals and key takeaways of the report in mind.

**5** Develop a graphically interesting and branded report template. Coordinate maps, graphics, and tables with the theme.

**6** Perform annual data collection. Data collection mechanisms are described in the Data Collection section.

Benefits:

- Allows for consistent analysis of the parking system.
- Provides a means of tracking metrics so that historical databases are established
- Allows planners to draw conclusions about what community-wide changes have impacted the parking system, such as transit or transportation additions or modifications, new development, and economic growth.
- Efficient parking management can reduce costs to all who provide parking. The cost of an annual report may be recaptured from parking revenue or other economic development sources.

Challenges:

- Initial development of an annual report requires significant coordination and commitment.
- Requires funding and/or for data to be collected and report written.

### Complimentary Strategies

- **Parking for Economic Development**
- **Update Time Limits**
- **Update Parking Requirements**

## *Alternatives for Annual Data Collection and Reporting*

Comprehensive data collection may not be feasible each year due to staff availability, other City projects that are taking time, available funds to make resources available, etc. While collecting comprehensive data is the ideal situation, it is not imperative to the success of the parking system management. There are alternatives so that meaningful data can be collected without the need to dedicate valuable staff time and City resources.

The following are a few alternative options for data collection and reporting.

- **Extended Collection Period:** The entire study area does not have to be collected all at once. As long as the collection days are typical (meaning there are no events or other disruptions to normal commute and parking patterns). For weekdays, the best days to collect typical data is Tuesday, Wednesday, and Thursday. Mondays and Fridays are often slightly abnormal because those are days when stores may be closed or employees extend their weekends, etc. Mondays are an okay alternative. Fridays should be avoided if possible.

  Staff can spread out the collection period over a number of weeks, only collecting data a few hours each day for a few facilities, until the area is collected

- **Reduce Study Area and Times:** Identify areas with known high demands from previous studies. Identify the peak hour(s) from those studies as well. Only collect data in those areas at those times of day. This can be conducted over a number of weekdays (or weekends if that is a peak period), until the data is collected for the selected area.

  If a significant change in occupancy is discovered between the years data was collected, the City can continue to do spot checks of occupancy in different parts of the Downtown area to confirm how widespread the changes are.

- **Collect Every Other Year:** Collecting data every other year will provide the City with updated baseline data that can help the City make meaningful changes to the system. This collection can be conducted on the full Downtown area or in smaller portions.

- **Maintain a Parking Database:** If maintaining and updating a full report is time consuming for the available staff, maintaining and updating a database is always helpful. A database can be kept in an Excel file or ArcMap shapefile. The database should include a facility name or number, a map with each facility identified by the correlating name or number, regulatory and enforcement information, number of spaces, and occupancy at any time data was collected for that period.

  The City has already established this type of database in Excel and ArcMap. Maintaining and updating it year over year will allow the City to track changes, draw conclusions on why those changes occurred, and make data-based decisions. This type of tracking may be more useful for internal purposes, whereas an Annual Report would be something that is public facing and shared outside of the department.

Given staff levels and resources, the City may come up with other alternatives for collecting data. There are always lighter versions to collecting and reporting data. The key is to keep collecting, even if it's on sample size data. The City should set a goal to try to do a comprehensive collection of data at least every three to five years as resources allow.

## Strategies for Managing Parking Assets

The subsection includes strategies meant to allocate existing parking resources appropriately to create space for users as well as planning for new parking supplies. The following parking strategies within this category are:

| | |
|---|---|
| **Flexible Shared Parking** | **Repurpose Underutilized Parking** |
| **Enhance Parking Permit Program** | **New Parking Supply for Economic Development** |

## Flexible Shared Parking

Shared parking is a strategy that allows two or more property owners to share the spaces in a single parking facility. If the facility is usually underutilized and the joint use of the lot allows two or more different properties to meet their parking demands without constructing expensive parking spaces for each individual property.

South Salt Lake currently has a shared parking ordinance. It requires properties to be within 300 to 500 feet of shared parking facility to qualify. Updates to the current policy could increase use of this tool. Action items for this strategy include:

**1** Expand shared parking acceptable walking distance requirements. 1,000 feet (one to two blocks) is a more flexible distance than the current 300-500 foot standard.

**2** Establish a template for shared parking agreements. The template should cover the main topics (liability, maintenance, number of spaces shared and time of day, etc.), while also providing flexibility to allow property owners to add their nuances to the agreement.

**3** Require appropriate signage or markings to indicate who, when, and where people can park in shared facilities

**4** Measure parking occupancy to assess effectiveness of shared parking arrangements. Evaluate annually.

**5** Consider centralized shared parking facilities. Allow developers to invest in a centralized parking facility they can use to meet their parking needs. Can be accomplished with an in-lieu fee program or the city can construct it and developers pay a fee to park.

Benefits:

- Significant parking facility savings for developers and ultimately tenants.
- Encourages multimodal transportation.
- Promotes development by optimizing the use of land
- City retains control as the keeper and facilitator of all agreements

Challenges:

- Additional review and consideration during planning approvals. This requires flexible and varied parking standards, verification, and enforcement.
- Need to track effectiveness with annual monitoring of parking demands.

### Complimentary Strategies

- Shared Parking
- Transit-Oriented Development
- Parking Requirements

## Repurpose Underutilized Parking

Repurposing underutilized parking allows parking facilities to be utilized for other purposes until the parking is in demand again. This strategy was used by some communities during the coronavirus pandemic. The intention is to provide flexibility into the Code to allow for portions of parking lots, garages or on-street parking to be repurposed for another use, such as the extension of business space, parklets, or bike parking. Action items for this strategy include:

**1** Develop policy to allow a property owner to apply for using an underutilized parking lot or spaces for a new purpose.

**2** Establish standards and procedures for qualifying and applying. Applicants should prove severe and consistent underutilization of less than 30% occupied for more than eight hours per day for the last month.

**3** Require monthly status reports by the applicants to verify that parking occupancies are remaining low and the new use is not creating parking demand issues. Establish a timeframe (six months, for instance) where the new use becomes more established and quarterly occupancy verifications are required.

**4** Continually monitor parking occupancies throughout the City to modify arrangements as needed.

Benefits:
- Repurposing will reduce underutilized parking facilities.
- Repurposing underutilized parking will reduce facilities required for enforcement.
- The strategy will reduce the need for new parking facilities in the future since the repurposed facilities are temporary.

Challenges:
- Opportunities may be difficult to obtain or hard to keep for a significant time span.
- May require developing a permitting system specifically geared towards this purpose.
- Need to track impact and effectiveness with monitoring of parking demands.

### Complimentary Strategies
- Shared Parking
- Transit-Oriented Development
- Parking Requirements

## Standardize Parking Permit Program

Parking permit programs protect parking spaces for different user groups, such as residents or employees, so that these users are able to park in areas that are convenient and are not blocked by visitors. Permit programs encourage people to parking where they should (e.g. in their own apartment complex or at the transit station) and aim to make the system function more efficiently. It should be noted that a permit system is not the same as a space reservation. Permits do not guarantee an available space, rather they allow a valid permit holder to park in an area or for longer periods while restricting other users based on a designated area or time of day. This strategy will allow for long-term parking in locations that will not compete with visitors or short-term parking users. Action items for this strategy include:

**1** Have discussions with business owners to identify locations where employees and residents park.

**2** Determine parking occupancy in and around locations identified as employees and resident parking.

**3** Identify on-street locations appropriate for long-term parking:
- Low occupancy areas (on-street and off-street)
- One to two blocks from employee destinations

**4** Display signage to indicate when and where people can park with the appropriate permit displayed.

Update city ordinances to reflect parking permit program.

Benefits:
- Protects parking assets for residents and employees when they need parking most.
- Allows visitors or short-term users access to appropriate locations.
- Optimizes the use of underutilized parking facilities.

Challenges:
- Meaningful enforcement is required to encourage compliance.
- It is essential that the program is supported by business owners, employees, and residents or it will not be accepted and utilized.
- The parking program must allow for adaptability and growth to ensure beneficial changes.
- Permit programs may not satisfy residents.

### Complimentary Strategies
- Shared Parking
- Transit-Oriented Development
- Parking Requirements

## New Parking for Economic Development

New parking facilities should support both new and existing development in South Salt Lake. Parking is a community asset that can support the City's economic development strategy. Partnerships and cooperation on parking infrastructure can help achieve a mix of project types and sizes and address existing and projected parking shortages. Action items for this strategy include:

**1** Bring together various city departments to identify opportunities and challenges to partnering on new parking opportunities.

**2** Form a committee between city departments and developers to guide the process.
Establish design guidelines for garages and lots to help new facilities blend with surrounding development.

**3** Develop guidelines, protocols, and incentives:
- What portion of overall supply should be public?
- Safety and design
- Incentives for developers

**4** Identify investment strategies:
- City investment in transformative projects
- Parking Investment District (PID)
- Identify properties to infill or become parking

Benefits:
- Creating a standard procedure for the City and developers to follow to ensure parking supply matches the pace of growth.
- Engages departments and developers in the decision-making process proactively.

Challenges:
- A clear vision and goals are required to determine how to identify and locate new parking supply.
- City staff must look beyond parking to incentivize economic growth while determining how parking fits with other strategies.
- Agreeing on an acceptable occupancy and understanding users perceptions may differ than the reality.
- Cost of building parking can be a barrier to desired projects and sometimes cannot be overcome.
- Future trends in both transportation and land use are unknown, and the system may require future adjustment.
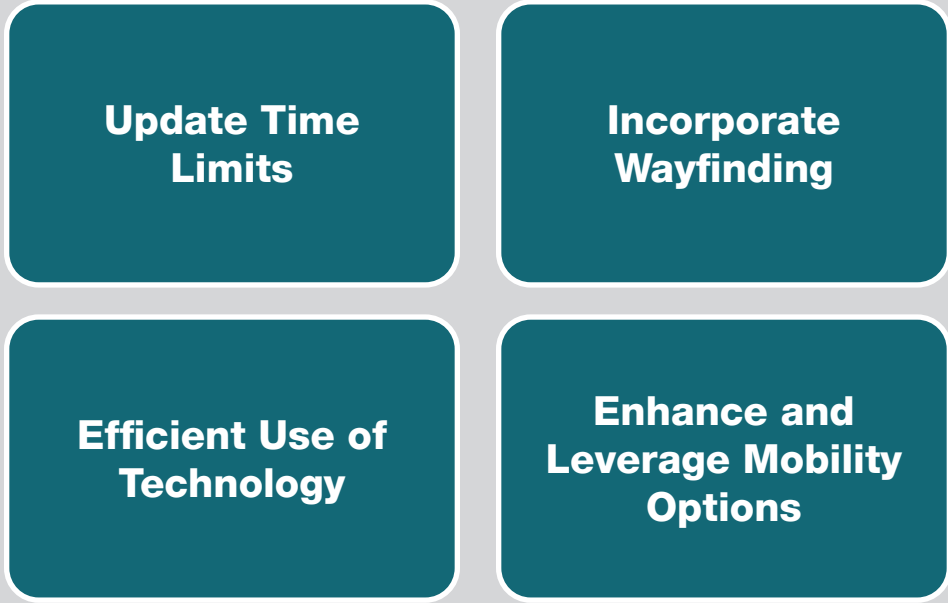
### Complimentary Strategies
- Shared Parking
- Transit-Oriented Development
- Parking Requirements

## Strategies for Managing Travel Behavior

This subsection discusses strategies that focus on vehicular trips, how people travel, and where they park to reach their destinations. This is done by encouraging multimodal travel mode and incentives to redistribute parking demand. This strategies within this bucket are:

| | |
|---|---|
| **Update Time Limits** | **Incorporate Wayfinding** |
| **Efficient Use of Technology** | **Enhance and Leverage Mobility Options** |

## Update Time Limits

Time limits restrict the length of time any single vehicle can park in a space. This is especially important in high demand areas and where short visits for shopping and pickups are encouraged. Most often time limits are seen in on-street spaces to encourage turnover in front of buildings. Changing time limits, to reflect the occupancy of the parking facility encourages turnover and, therefore, creates more parking availability. Action items for this strategy include:

**1** Conduct a comprehensive data collection effort in the downtown area and near transit stations.

Record parking occupancy and collect duration also in high demand areas.

**2** Implement parking time limits in areas with high parking occupancies. Start with one- or two-hour time limits only on blocks with occupancies over 85%.

**3** Establish time-limit enforcement procedures – sporadic enforcement may be most efficient for ensuring compliance without adding more staff (discussed further in the next section).

**4** Clearly communicate with the public regarding changes to parking time limits. (I would make this #4)

**5** Monitor parking occupancies and adjust as needed.

Benefits:
- Updating time limits optimizes existing parking while reducing the need for new parking.
- Encourages turnover to support short term visits that generate revenue.
- Shifts long-term parking users to less convenient facilities where they don't negatively impact visitation.

Challenges:
- Pedestrian-oriented design must be a consideration to facilitate safe and accessible? (maybe not the right word) travelling without a vehicle.
- Areas with time-limited parking must have access to viable transit and active transportation choices (?).
- This strategy should be complimented by annual monitoring of parking demands.

### Complimentary Strategies
- Parking Requirements
- Transit-Oriented Development
- Enhance Enforcement

## Incorporate Wayfinding

Effective wayfinding signage can distribute parking demands throughout an area. The signs reduce confusion for visitors with clear indication of public parking, even for parking that is privately owned, but available for public use). Signage helps visitor reduce their time hunting for a parking space and helps them create new parking habits. It many cities, it has been observed that people searching for parking adds significant traffic congestion to local streets. Themed and branded graphics create a sense of confidence that the parking is easy to find and well managed. Action items for this strategy include:

**1** Conduct an inventory of existing wayfinding signs, destination signs, parking signs, and associated messaging.

**2** Conduct a windshield study to observe circulation throughout the area. Use current traffic studies/counts to supplement observations. Identify decision points and points of confusion, and how people circle through the area looking for parking/ destination.

**3** Coordinate wayfinding and branding ideas with private off-street owners so garage/lot signage fits with the City's theme
- In accordance with objective LU-12.1 in General Plan

**4** Develop a wayfinding plan that incorporates a common brand theme and identifies types of signage and specific location needed to direct visitors to parking areas efficiently.

**5** Create a map and post on the City's website and media channels.
Create or add new signage in the new theme.

**6** Consider technology, such as smartphone applications that provide real-time parking availability or parking regulations.

Benefits:
- Wayfinding encourages helps distribute parking demand while encouraging parking regulation compliance.
- Increases parking utilizationby making available parking easier to find.
- Increases communication visitors and reinforces positive brand.

Challenges:
- Requires coordination between public and private entities. May require significant negotiation and agreements with private parking facility operators.
- Investment in production of new signage or technology. Cost of sign installation and maintenance may be significant.

### Complimentary Strategies
- Parking Requirements
- Transit-Oriented Development
- Enhance Enforcement

## Efficient Use of Technology

Introducing the technology into the parking system can improve access to parking facilities and improve overall circulation. However, it is important to first know what goal you wish to achieve before investing in technology because there are many options and they can be expensive.

Technology can vary widely depending on the intended parking application. Smartphone applications and dynamic messaging and real-time parking availability direct users to available parking. Other technologies are used to collect payments, manage permits, and enforcement. Action items for this strategy include:

**1** Assess the current procedures for processing parking and enforcement data. Conduct a SWOT analysis to determine areas of opportunity and improvement.

**2** Establish goals of the city that may be reached through implementing technology (e.g., data collection, real-time availability, permitting)

Consider software platforms and integration barriers or opportunities

**3** Determine what metrics can be pulled from using technology, such as parking occupancy and duration from real-time counting systems, or citation data from handheld GPS for enforcement officers.

**4** Conduct a pilot study to test technology performance

- Identify pilot period and metrics vendors need to collect
- Public survey to gauge customer satisfaction

Select preferred technology(ies) based on result.

**5** Train staff on the adopted technology. Training should include how the technology works, backend data management, maintenance, and operations.

**6** Conduct a messaging campaign to advertise the changes and how to use the technology.

Benefit:

- Enhances of the user experience.
- Better balance parking access and utilization.
- Increases convenience for city parking duties, such as data collection, parking management, and transaction processing.
- Reduces city staff overhead time for permitting and payment administration and management.

Challenges:

- Selecting technology is time consuming and difficult. Many new technologies are out there with lots of "bells and whistles." and significant cost.

Having a clear goal for how technology will be used can help whittle down what technology is really needed and useful.

- Training and adoption by staff who will utilize the new technology.

### Complimentary Strategies

- Permit Parking
- Enhance Enforcement
- Incorporate Wayfinding

## Enhance and Leverage Mobility Options

Enhancing mobility within the City creates more options for moving both people and goods. By leveraging the existing multimodal options available within the City - bikes, scooters, sidewalks- South Salt Lake can reduce its reliance on single occupancy vehicles while maintaining the same level of mobility and access. Action items for this strategy include:

**1** Assess current bike and pedestrian and scooter usage and conditions for South Salt Lake and compare against overutilized parking facilities.

**2** Reaffirm mobility goals and objectives for bikes, pedestrians, and other non-vehicular modes from the Strategic Mobility Plan

**3** Establish programs, projects, or technologies to reach mobility goals, e.g., Complete Streets, transit hub, bus services, bike facilities, bike and pedestrian connectivity, bike parking, lighting, etc.

**4** Update ordinances to reflect and promote new mobility goals and programs.

**5** Identify investment opportunities to plan, design, and construct multimodal projects for enhanced connectivity.

Benefits include:

- Encourages shared mobility options.
- Reduces commute impacts and improves commute knowledge.
- Redefines how users utilize and move throughout South Salt Lake.

Challenges include:

- Funding.
- Partnerships must be negotiated and refined.
- Evolving and changing technologies/devices and shifting landscape of companies offering mobility services.

### Complimentary Strategies

- Parking Requirements
- Parking Permit Program
- Transit-Oriented Development

# 8. Data Collection – Methods and Metrics

# 8. Data Collection – Methods and Metrics

Data is a critical part of tracking and monitoring all aspects of the parking program. Comprehensive data, especially historical data, helps the city and the public understand what, why, and how decisions should be made for improving the system. The following is a list of data that should be collected on a regular basis. The data should be collected annually and included in the parking program's Annual Report.

## Parking Inventory
Provides the baseline for analysis and allows the City to track changes to the parking system over time and the impacts of those changes (e.g., removal/addition of parking, regulatory changes).

## Parking Occupancy
Indicates how well the system is being used and when parking strategies need to be implemented or adjusted. Time limit policies can be adjusted to either encourage or discourage use.

## Parking Duration
Indicates how long people are staying in given locations. Timing, and eventually pricing, policies can be adjusted based on the surrounding uses and turnover rate. Collect only in high demand areas.

## Parking Citation Volume and Type
Indicates how many citations are issued and whether violations are occurring in isolated areas over a given period of time, whether citations are increasing. Further analysis could figure out why that is and adjust parking strategies and policies as needed.

## Program Revenue and Expenditures
Changes in revenue, when viewed granularly, can define how parking demands are shifting, and the success of policy changes. Revenue should include citations and permit revenues.

## Customer Satisfaction
Conducting customer satisfaction surveys periodically can define how patrons are reacting to changes in the program. The City should consider satisfaction levels of residents, businesses, employees, and customers at a minimum.

## Vehicle Congestion
Reduction in vehicle miles traveled and localized congestion is an indicator that parking management strategies are effective at redistributing demand and overall access to the community.

## Mode Split & Transit Ridership
Mode split in the community is a key characteristic in defining shifting behavioral and access patterns. Reductions in drive alone rates can be a clear indicator that parking policies are working.

## Data Collection Plan

As data should be collected in a consistent manner each year to ensure that the metrics are comparable, data collection plan is needed. The plan should specify the staff necessary to collect each data point, equipment needed (cameras, GPS, pen/paper, water, etc.), the timeframe necessary to complete the task, specific instructions on how to collect the data, analysis standards, and reporting standards. Staff should also be trained before entering the field to collect data to ensure consistency in the collection methodology.

## How To Use The Data

The following provides further details on how to use the data that is collected.

### Parking Inventory

Create an inventory database that can be updated annually. This inventory is a baseline metric that helps provide context for the other data metrics. The database should include:

- type of space (on-street, lot, garage)
- ownership (pubic or private)
- regulations (time limits, enforcement hours)
- location
- number of spaces (total and by type if it's a shared facility)
- other information (such as is the facility shared? is the parking for transit riders only?).
- record spaces that were lost or changed in some way, including no longer shared but total spaces, lot removed, construction that temporally or permanently eliminates parking, etc.).

### Parking Occupancy

Parking occupancy is the key metric used to determine when a change to the management plan is merited. - South Salt Lake should consider making parking management adjustments once a set of adjoining parking spaces (e.g., a continuous block face or more) or a parking lot or garage is consistently experiencing the following:

- Parking occupancies reach or exceed 85% or more for three or more hours over at least two weekdays (measured in separate weeks)
- Parking occupancies reach or exceed 70% five or more hours over at least two weekdays (measured in separate weeks)

### Parking Duration

Parking duration should be collected in high-demand areas only so that time limit regulations can be adjusted. The intention is to encourage turnover of spaces, creating more availability. Duration data does not need to be collected each hour of the day, like occupancy data, but rather only the hours surrounding and including the peak times of day.

### Parking Citations

Enforcement officers can collect and share this information on a regular basis in an agreed upon interval (monthly, quarterly, annually) to share with staff and decision makers. While there are no specific metrics, this data will help determine where hotspot locations are for certain types of violations. After a couple of years of consistently collected data, the City can set thresholds for making improvements to the enforcement practices.

## Parking Revenue and Expenditures

Knowing how much money is spent on parking helps to inform conversations about how impacts to parking will also impact other areas of city planning. For instance, as various departments review budgets, it is a good opportunity to have conversations about how parking has impacted transit or development and so on. Its also useful for when there are conversations about how to price parking, such as permits or parking at transit stations, if and when the parking program matures to that point. A parking revenue report also helps establish budgets to help support other interventions, such as signage, collections, or technology.

## Customer Satisfaction

Survey the community on an annual basis to gauge feedback from customers, business owners, property owners, developers, residents, and other representatives. The survey should ask similar questions year over year to display historic trends.

## Vehicle Congestion

Vehicle congestion data is available from WFRC and can be cross-analyzed with other data that the City collects. The data can be added to the reports to help draw conclusions about how the implementation of the recommendations has impacted the number of vehicles on the road.

## Mode Split and Transit Ridership

Data collected by WFRC and UTA can be used to build this dataset to track the percentage of those who travel by single occupancy vehicle, bike, pedestrian, and transit. In this category, the City could also track the usage of bike share programs and other mobility programs. UTA can provide detailed ridership data for each station within South Salt Lake as well.

# 9. Implementation Timeline

## 9. Implementation Timeline

The timeline for the implementing strategies recommended in this plan is divided into three planning horizons: short-term (now to two years), mid-term (three to five years), and long-term (more than five years). The matrix indicates when each of the strategies should be initiated, guided by the principle of taking steps appropriate to the size and complexity of the problem. The implementation plan is ordered in a way to firmly establish the groundwork for a parking program. Many of the tasks initiated in the short-term planning horizon will still be continued for years as a part of the program.

The matrix does not specify each action item for each strategy. This is because implementation of the various action items of those strategies will vary and will be dependent upon the changing conditions of the community and the ability to implement successive strategies. Once a strategy is initiated, it is assumed that the specific action items for the associated strategy will also eventually be initiated.

| Strategy | Type of Strategy | Evaluation Cycle |
|---|---|---|
| **Short-Term Planning Horizon (0-5 years)** | | |
| Update Parking Requirements | Practices and Policies | Every 5-10 years or as plans are updated |
| Data-Based Decision-Making | Practices and Policies | Annually |
| Enforcement Practices | Practices and Policies | Becomes daily/weekly practice |
| Develop an Annual Report | Practices and Policies | Annually |
| Shared Parking | Manage Parking Assets | Annually |
| Repurpose Underutilized Parking | Manage Parking Assets | Quarterly (site specific) |
| **Mid-Term Planning Horizon (5-10 years)** | | |
| Curb Management Policies | Practices and Policies | Every 5-10 years |
| Update Time Limits | Manage Travel Behavior | Every 1-2 years |
| Incorporate Wayfinding | Manage Travel Behavior | Every 5-10 years |
| Parking Permit Program | Manage Parking Assets | Every 5-10 years |
| New Parking Supply | Manage Parking Assets | Annually |
| **Long-Term Planning Horizon (over 10 years)** | | |
| Enhance Mobility Options | Manage Travel Behavior | Annually |
| Efficient Technology | Manage Travel Behavior | Annually |
| Manage Transit Station Parking | Practices and Policies | Annually |

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# Memorandum

Date:       June 22, 2022

To:         Julie Bjornstad, AICP, Senior Transportation Planner

From:       Christopher Bender, Anjum Bawa, and Preston Stinger

**Subject:   Task 2 – Technical Research Summary**

*UT22-2341*

# Executive Summary

This technical memorandum summarizes the literature review and informs our "case" to modernize the approach to parking for communities in and around Utah. The literature review focused on "why" there is a need to modernize parking in Utah communities. The purpose of the research is to establish the long-term impacts of parking code requirements and policies that not only influence travel behavior, mode choice, and supporting infrastructure needs, but also how these code requirements and policies directly or indirectly influence economic development, shape of land development, equity, safety, resiliency, and sustainability in Utah communities.

To focus on building the case for modernizing the approach to how parking is provided, this literature review is organized around the following key questions:

- What are some of the direct and indirect costs of parking on communities?
- Do current parking codes and policies promote multimodal mobility, sustainability, equity, and resiliency?
- What approach to parking is needed at transit stations and transit-oriented developments?
- Are current parking requirements sensitive to context and community goals?

Provided below are key takeaways from the literature review:

## What are some of the direct and indirect costs of parking on communities?

- There are significant direct and indirect opportunity costs associated with land dedication and development of parking facilities. Excessive parking requirements can result in higher housing costs and increased overall costs of living in cities. Many of the direct costs are added to the cost of new residential construction and leasing
  - *An average of eight parking spaces (including on-street parking) for each car in cities in the United States*
- Cost to construct, operate and maintain parking facilities have grown considerably over time and increasing every year.
  - *Structured parking costs could range from $20,000 to $80,000 or more per space depending on whether the structure is above ground or underground*
- In addition to the direct costs, there are environmental and indirect costs to communities such as promoting vehicle travel over walking, biking and transit use which results in congestions, delays, and increase in greenhouse gas emissions.

## Do current parking codes and policies promote multimodal mobility, sustainability, equity, and resiliency?

- There has been a paradigm shift in approach towards parking vehicles. New paradigm strives to provide optimal parking supply and efficiency by employing parking management policies and strategies.
- Public land and funds used to provide parking at non-residential uses render land and funds unavailable for other public benefits such as providing affordable housing or investing in public transit and active transportation modes.
  - *For a typical affordable housing development, adding one space per unit increased leasing costs by about 12.5%; adding two parking spaces increased leasing costs by about 25%.*
- Parking can result in negative trade-offs with respect to investment in other travel modes.

## What approach to parking is needed at transit stations and transit-oriented developments?

- Transit-oriented developments are designed to leverage proximity to transit infrastructure by encouraging greater use of transit, walking and other active mobility options and reduce dependance on single occupancy vehicles
- It is critical to understand how park-and-ride spaces are deployed, managed, and priced to ensure their efficient use and allow for high-quality connections between other modes and transit.
- Strategies such as shared parking and reduced parking requirements at station districts can support a transit adjacent or transit-oriented development with right-sized and efficient parking supplies.
- Because TODs are relatively high-density developments proximate to high quality transit, pedestrian, and have a diversity of uses, they reduce dependency on automobile travel and associated parking demand.

## Are current parking requirements sensitive to context and community goals?

- Minimum parking requirements in most cities Utah may not have the flexibility to be context sensitive to unique factors contributing to parking demand.
- There is a high degree of correlation between parking demand and factors such as development scale, diversity of uses, density of uses, design characteristics, demographics, destination accessibility, and distance of origins/destinations to transit
- Excessive parking requirements can have an amplified impact of cost to build affordable housing.
- To avoid oversupply of parking; public agencies should investigate having context sensitive parking requirements, policies and adopt parking management strategies that strive to optimize both public and private parking.

# Introduction

This technical memorandum summarizes the literature review including recent research, case studies, and institutional knowledge and experience working with multiple agencies across the country to better align parking standards and policies with overarching mobility policies that prioritize equitable access to all modes, climate, safety, and reducing congestion. This literature review informs the "case" to modernize parking for communities in Utah. The case builds upon the work completed as part of Phase 1 of the Utah Parking Modernization Initiative (April 2021), which discussed several parking management strategies and potential policies to reduce parking demand. These strategies included, but were not limited to, right-sizing parking requirements, deploying mobility hubs, transit station parking planning, shared parking, and paid parking.

Modernized parking quantity, design, and deployment can be a driver of economic development and an important amenity that supports access to jobs and other daily necessities, especially in mobility contexts where transit, biking, and walking infrastructure ranges from less mature to non-existent. The literature review focused on "why" there is a need to modernize parking in Utah communities. The research seeks to show the long-term impacts of parking code requirements and policies that not only influence travel behavior, car ownership, and supporting infrastructure needs, but also how these code requirements and policies directly or indirectly influence economic development, shape of land-development, safety, resiliency, and sustainability in our communities. Provided below is a comprehensive summary of the research.

## What are the direct and indirect costs of parking for communities?

To understand the influence and impacts of parking policies and code requirements, it is important to understand the direct and indirect costs, who bears these costs and in what forms and magnitude. The research focused on the following costs:

- Direct and opportunity costs of land area dedicated to parking;
- Construction, operations, and maintenance costs; and
- Environmental and indirect costs.

### Direct and Opportunity Costs of Land Dedicated to Parking

Victoria Transportation Policy Institute (www.VTPI.org) in its research paper, *Transportation Cost and Benefit Analysis II – Parking Cost*[1], summarized findings from various studies. Davis et. al.[2]

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[1] Transportation Cost and Benefit Analysis II – Parking Costs, Victoria Transport Policy Institute (www.vtpi.org), March 2020.

[2] Amélie Y. Davis, Bryan C. Pijanowski, Kimberly D. Robinson and Paul B. Kidwell (2010), *Estimating Parking Lot Footprints in The Upper Great Lakes Region of the USA* Landscape and Urban Planning, Vol. 96, Issue 2, 30 May 2010, pp. 68–77.

analyzed total land area dedicated to surface parking and its opportunity costs in Illinois, Indiana, Michigan, and Wisconsin and identified more than 43 million parking spaces in these four states, which averages 2.5 to 3.0 off-street, non-residential spaces per vehicle. Approximately 780 square miles or 4.97% of all urban land in these states were parking lots.

Chester, et. al,[3] estimated the parking supply growth in Los Angeles County. Their study estimated 3.3 spaces for every vehicle, which included 1.0 spaces of residential off-street parking, 1.7 of nonresidential off-street parking, and 0.6 of on-street parking spaces. In total, 14% of the County's incorporated land is used for parking.

Donald Shoup, in his book *The High Cost of Free Parking*[4], calculates an average of eight parking spaces (including on-street parking) for each car in cities in the United States.

Eric Scharnhorst, in his special report titled "Quantified Parking": Comprehensive Parking Inventories for Five U.S. Cities", calculated economic investments in parking inventories for five cities: Seattle, Washington; Jackson, Wyoming; New York, New York; Philadelphia, Pennsylvania; and Des Moines, Iowa. Seattle, for example, has approximately 1.6 million parking spaces with an estimated value or "replacement cost[5]" of $35.8 billion or $118,000 per household. Generally, his research indicates that where land is less expensive, a greater share of parking is surface, and where land is more expensive, a greater share is structure. Total parking supply also tends to increase with density, so supply is often greater where it is less visible.

In addition to being costly to build, parking can also come with a high "opportunity cost." Since parking is typically built next to destinations, parking occupies highly valuable land contrary to the notion that parking facility land has little or no value. That is, it can dilute the land value that would otherwise be used for more value-adding purposes. A local example of that is found in Orem, Utah, where a Costco parcel has a taxable value of over five million dollars, but the value/acre is less than one million dollars, partially due to an overabundant supply of parking.[6]

There is usually an opportunity cost of dedicating land to parking, since it could be used for buildings, landscaping, leased or sold. Likewise, on-street parking area can be used as traffic lanes, busways, bike lanes, landscaping, or additional sidewalk space.

[3] Mikhail Chester, et al. (2015), *Parking Infrastructure: A Constraint on or Opportunity for Urban Redevelopment? A Study of Los Angeles County Parking Supply and Growth*, Journal of the American Planning Association, Vol. 81, No. 4, pp. 268–286

[4] *High Cost of Free Parking*, Donald Shoup, 2005

[5] Replacement cost refers to the amount of money that must be spent to replace an essential asset such as real estate property.

[6] Orem City (2014), "Economic Development Strategy Plan," Zions Bank Public Finance, 2014, p. 49

## Construction, Operations, and Maintenance Costs

Construction of parking facilities depends on many factors including, but not limited to, site type, site size and shape (e.g., regular rectangular sites, irregular polygon sites), vertical elements (e.g., ramps), surface circulation (e.g., aisles, driveways), number of levels, site access, topography, exterior design, and geographic location. Surface parking costs typically range from $5,000 to $10,000 per space for off-street parking. Structured parking costs could range from $25,000 to $75,000 or more per space depending on whether the structure is above ground or underground. For on-street parking, the cost of the land, pavement, street cleaning, and other services come directly out of the tax dollars. Each on-street space is estimated to cost around $2,000 to build and $500 to maintain annually[7].

Carl Walker summarized parking structure construction costs in various cities of United States in his paper, *Mean Construction Costs*[8]. The paper identified an average of $103 per square feet or $34,000 per space for underground parking and $74 per square feet or $24,000 per space for above-grade structure. In addition to the cost of construction, developing a parking facility typically involves other costs for project planning, design, permits, financing, etc., which typically adds 30-40% to the construction cost.

Operational and maintenance costs include cleaning, lighting, maintenance, repairs, security, landscaping, snow removal, access controls, enforcement, insurance, administration, etc. According to VTPI, in 2002, annual operation and maintenance costs ranged from $345 to $575 per space per year.[9] Adjusting for inflation, these costs would range from $555 to $925 in 2022.

Parking facilities costs are often perceived to be sunk costs with little incentive to reduce parking demand once the facility has been constructed. However, reducing parking demand can avoid the need to build excessive parking supply to accommodate growth. Existing parking facilities with excess supply could be shared, leased, or rented to other users; alternatively, the land could be converted to other uses such as buildings, green space, or sold to develop the highest and best use of the land.

## Environmental and Indirect Costs

Parking comes with direct environmental costs and trade-offs. The environmental costs include loss of greenspace, increased impervious surfaces, storm-water management costs, heat island effects, and aesthetic degradation. Zoning codes that require excessive parking requirements and low pricing can discourage infill development and encourage sprawl. Excessive parking

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[7] Donald Shoup, "High Cost Of Free Parking", Updated Edition, June, 2011.
[8] Carl Walker (2016), "Mean Construction Costs," Carl Walker Consulting, 2016
[9] VTPI (2020), "Transportation Cost and Benefit Analysis II – Parking Costs," VTPI, 2020, pp.12–13

encourages vehicle use and discourages walking, biking, and public transit which increases urban congestion, delays, vehicle-miles-traveled, and greenhouse gas emissions.

According to the results shown in USDOT's 1990 Nationwide Personal Transportation Survey, in the United States, 95% of commuters drive to work, 81% of whom do not pay direct costs for parking. Additionally, parking for 99% of non-commute trips is also unpriced.[10] The cost of unpriced parking is borne by businesses and governments, who then pass the costs on to consumers and taxpayers.

## Do current parking codes and policies promote multimodal mobility, sustainability, equity, and resiliency?

Todd Litman, in his article *Parking Management: Comprehensive Implementation Guide*[11] highlights how parking has been undergoing a paradigm shift. The old paradigm assumed that "transportation" equated to driving, so parking facilities should be abundant and cheap with costs borne by governments and businesses. The new paradigm assumes that transportation includes multiple modes, and that not everyone drives; the new paradigm strives to provide optimal parking supply and efficiency by employing parking management policies and strategies.

Excessive parking requirements can result in increased housing costs and overall costs of living in cities. Many of the direct costs summarized above are added to the cost of new residential construction and leasing. Public land and funds used to provide parking at non-residential uses render land and funds unavailable for other public purposes such as providing affordable housing or investing in public transit and active transportation modes.

Parking can result in negative trade-offs with respect to investment in other travel modes. Curb-lanes that are typically used for on-street parking can serve many alternative uses such as bus-only lanes, HOV lanes, bike lanes, or wider sidewalks.

King County Metro, the transit authority for King County, Washington, researched parking demand and supply at its multifamily housing developments. The *Right Size Parking* (RSP)[12] study concluded that multi-family parking is oversupplied. Based on parking utilization and pricing data gathered from over 200 multi-family properties, the RSP project determined that existing multifamily parking capacity exceeded utilization by an average of 0.4 spaces per housing unit — a 40% oversupply. For a typical affordable housing development, adding one space per unit increased leasing costs by about 12.5%; adding two parking spaces increased leasing costs by about 25%.

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[10] USDOT (1992), "Summary of Travel Trends: 1990 Nationwide Personal Transportation Survey," USDOT, 1992

[11] Parking Management: Strategies, Evaluation and Planning, Todd Litman, 2008.

[12] Right Size Parking, King County Metro, Fehr & Peers, VIA, Rick Williams Consulting, Kidder Mathews, 2015

## What approach to parking is needed at transit stations and transit-oriented developments?

Transit-oriented developments are designed to leverage proximity to transit infrastructure by encouraging greater use of transit, walking and other active mobility options and reduce dependance on single occupancy vehicles. Applying a traditional approach to parking (suburban model) to a denser urban environment can result in excess parking where space is prioritized for parking over other modes of mobility and amenities at station areas. Rightsizing parking policies that recognize the equity impact of parking at TODs can go a long way in addressing the mobility issues for everyone in the community as opposed to a few people who can afford to own and maintain private automobiles. [13]

Park-and-Ride lots adjacent to transit stations support transit riders by providing day-long parking spaces for vehicles used to connect riders to the transit station from their residences, especially in suburban communities where other modes of first/last mile connections are not mature or available. However, it is critical to understand how these spaces are deployed, managed, and priced such that the highly valuable space around a transit station is used efficiently and allows for high-quality connections between other modes and transit.

Many of the suburban communities that have high-quality transit stations have evolved over the years with commercial and residential development in the vicinity of the stations. These station areas can benefit from mixed-use, transit-oriented developments (TOD), that serve as the origin or destination for many transit trips. However, building new parking facilities to support the TODs can add prohibitive construction costs. Strategies such as shared parking and reduced parking requirements at station districts can be instrumental to the success of the TODs.

In a research study[14] to understand how to maximize efficiency and increase person occupancy at overcrowded park-and-ride lots conducted for Washington State Department of Transportation (WSDOT), it was recognized these parking facilities typically operate at or near capacity. All three regional transportation agencies including WSDOT, King County Metro Transit, and Sound Transit were interested in understanding use of these lots to inform potential parking management strategies in the future with a long-term objective to eventually implement strategies that will increase the number of people served by the limited parking spaces. The study found the following strategies to be effective in improving person efficiency at overcrowded park-and-ride facilities:

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[13] Mariia Zimmerman, "Parking: A major Barrier to Equitable Oriented Transit, Rethinking Parking Policy to Achieve eTOD", Strong, Prosperous, And Resilient Communities Challenge (SPARCC), February 2020.

[14] How Can We Maximize Efficiency and Increase Person Occupancy at Overcrowded Park and Rides, Prepared for Washington State Department of Transportation by Vikash V. Gayah, Krae Stieffenhofer, and Venky Shankar, June 2014.

- Implement parking fees for single-occupant vehicles to disincentivize their use
- Dedicate a portion of parking spaces at each lot for multi-occupant vehicle use only
- Revise local transit service near these locations to increase the percent of drivers that have feasible transit options to the park-and-rides
- Examine the use of parking at available lots near the park-and-ride facilities for overflow or single-occupant vehicle parking

A University of Utah study, "*Trip and Parking Generation at Transit-Oriented Developments: Five US Case Studies*"[15] surveyed five TODs located in Denver, Colorado; Los Angeles, California; San Francisco, California; Seattle, Washington; and Washington, DC. The five TODs were chosen due to their development density, land-use diversity, urban design, destination accessibility, distance to transit, demand management, and demographics. In addition, this study included a literature review and on-site data collection. Data was collected at the selected TODs via ingress/egress counts, intercept surveys, and parking inventory/occupancy surveys and then compared to the Institute of Transportation Engineers (ITE) guidelines. The study found that the TODs experienced lower parking and driving demand than conventional suburban developments. The TODs experienced less demand than what the ITE *Trip Generation* manual would have estimated at the time. Additionally, parking requirements at these same TODs exceeded parking demand in most cases, indicating that the peak parking demand was less than half of what the ITE *Parking Generation* manual would have estimated at the time. The findings revealed a strong relationship between land use, parking demand, and vehicle trips. For instance, the review revealed that automobile dependency is typically mitigated by high-density development, the availability of high-quality transit options, pedestrian-friendly elements, and intermixed land uses – all elements found in well-planned TODs. Parking and other broad impervious surfaces were found to exacerbate problems such as urban sprawl, the urban heat island effect[16], lack of green coverage, and poor water quality. The study also showed that states with a higher proportion of their urban land devoted to parking lots are also states where urban sprawl is more prevalent.

The Utah Department of Transportation (UDOT) commissioned comparative case studies of trip and parking generation at the Orenco Station TOD in the Portland Metropolitan Region and the Station Park transit-adjacent development (TAD) in Farmington, Utah (Ewing et al., 2017). The research found that peak parking demand at Orenco Station was less than one half of what ITE's *Parking Generation*[17] manual would have recommended at the time. Also, vehicle trip generation rates were about half what is suggested in the ITE guidelines. Station Park experienced a smaller, but still substantial, vehicle trip reduction due to the mixed-use nature of the development.

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[15] Trip and Parking Generation at Transit–Oriented Developments: Five US Case Studies, Reid Ewing, Guang Tian, Torrey Lyons, Kathryn Terzano, College of Architecture and Planning, University of Utah, 2017

[16] Urban heat islands occur when cities replace natural land cover with dense concentrations of pavement, buildings, and other surfaces that absorb and retain heat.

[17] Parking Generation Manual, 5th Edition, Institute of Transportation Engineers, 2019

Parking generation rates at Station Park were also lower than what ITE guidelines would have projected. In terms of metrics often associated with transportation performance, the large-scale TOD dramatically outperformed the large-scale TAD. The adjacent rail station appears to have little effect on the performance of the TAD, but a substantial effect on the performance of the TOD. TODs that are built specifically to take advantage of transit will experience much lower trip and parking demand than ITE guidelines suggest. TADs that are built near to transit stations also experience lower trip and parking demand, but to a much smaller degree.

## Are current parking requirements sensitive to context and community goals?

Minimum parking requirements specified in zoning codes may not be sensitive to development context or community goals. In 2010, Fehr & Peers partnered with the US Environmental Protection Agency (EPA) [18]to develop a more accurate methodology for estimating trips generated by mixed-use development projects. Many factors are known to influence travel behavior, mode choice, internal capture, and external trip making. The research effort involved correlating trip generation with factors such as development scale, diversity of uses, density of uses, design characteristics, demographics, destination accessibility, and distance of origin and destination to transit. Many of these factors also influence car ownership and parking demand.

As part of this literature review, Fehr & Peers compiled the minimum off-street parking requirements for ten cities in and around WFRC's jurisdiction. These cities include Salt Lake City, West Valley, West Jordan, Provo, Sandy, Ogden, Layton, South Jordan, Lehi, and Millcreek. The parking requirements were compiled to compare the minimum parking requirements for some of the most common land-uses. As shown in Table 1, for single family residential uses, all cities require two spaces per dwelling unit except for Provo, which requires three spaces per unit. Multi-family residential parking requirements were found to be either based on the number of dwelling units or the number of bedrooms; the requirements ranged from 1.25 spaces per dwelling unit in Salt Lake City (1.25 – 3.00 per unit) and West Jordan to two spaces per unit in West Valley, Sandy, Ogden, and Lehi. Provo, Layton, South Jordan, and Millcreek require a minimum of one space per bedroom and a maximum of four per unit. For retail uses, parking ranges from a minimum of two spaces per 1,000 square feet in Salt Lake City (ranges between two and five per 1,000 square feet) to five spaces per 1,000 square feet in West Jordan, Sandy, and South Jordan. Restaurant uses are required to provide a minimum of two per 1,000 square feet in Salt Lake City (ranges between two and four spaces per 1,000 square feet) to ten spaces per 1,000 square feet in most surveyed cities. Office parking ranges between two and four spaces per 1,000 square feet with most

[18] Traffic Generation by Mixed-Use Developments – A Six-Region Study using Consistent Built Environment Measures, Ewing et al., ASCE Journal of Urban Planning and Development, September 2011
MXD+, Trip Generation Model to Accurately estimate trips, VMT and GHG generated by Mixed Use Developments, www.fehrandpeers.com/mxd

requiring four per 1,000 square feet. Table 1 provides a summary of the parking requirements at the ten reviewed cities.

### Table 1: Parking Requirements for Common Land-Uses in Wasatch Front Region

| City | Single-Family | Multifamily | Retail | Restaurants | Office |
|---|---|---|---|---|---|
| *Salt Lake City* | 2 space /unit | 1.25-3 /per unit | 2-5/1,000 sq ft | 2-4/1,000 sq ft | 2-4/1,000 sq ft |
| *West Valley* | 2 spaces /unit | 2 spaces /unit | 1/250-300 sq ft | 1/100 sq ft or 1/4 seats | 1/250-300 sq ft |
| *West Jordan* | 2 spaces /unit | 1.25 spaces /unit | 1/200 sq ft | 1/100 sq ft or 1/4 seats | 1/350-500 sq ft (# of floors) |
| *Provo* | 3 spaces /unit | 1-4 spaces /unit (# of rooms) | 1/600 sq ft | 1/100 sq ft or 1/4 seats | 1/250 sq ft |
| *Sandy* | 2 spaces /unit | 2 spaces /unit | 5/1,000 sq ft | 1/3 seats +5 | 4/1,000 sq ft |
| *Ogden* | 2 spaces/unit | 2 spaces/unit | 1/300 sq ft | 1/100 sq ft | 1/300 sq ft + company vehicles |
| *Layton* | 2 spaces /unit | 1.25-2 spaces /unit (# of rooms) | 2-6/1,000 sq ft (by store type) | 1/100 sq ft or 1/3 seats | 3/1,000 sq ft |
| *South Jordan* | 2 spaces /unit | 1.5-3 spaces /unit (# of rooms) | 1/200 sq ft | 1/100 sq ft or 1/4 seats | 1/300 sq ft |
| *Lehi* | 2 spaces /unit | 2 spaces /unit | 1/300 sq ft | 1/100 sq ft or 2.5 seats | 3/300 sq ft |
| *Millcreek* | 2 spaces /unit | 1-3/unit (# of rooms) | 1/250 sq ft | 1/100 sq ft or 1/4 seats | 1/250 sq ft |

*Source: Zoning codes of various cities researched.*

As outlined previously, the *Right Size Parking* study conducted by King County Metro concluded that parking supply requirements and guidelines are typically not tied to parking demand. For example, the study found that, on average, parking is supplied at 1.4 spaces per residential dwelling unit but is only used at about one space per unit. Furthermore, the study also points out that there are two major gaps in understanding what drives parking demand. Specifically, the two largest identified gaps identified were:

- A lack of consensus on factors that influence demand for parking; and
- Omission of data on parking availability, cost, and pricing.

Excessive parking requirements can amplify the cost to build affordable housing. Fehr & Peers conducted a trip and parking demand study for City of Los Angeles' "Infill and Complete Streets: Capturing VMT Impacts and Benefits Pursuant to California Environmental Quality Act". [19]The study involved conducting trip generation and parking utilization surveys at numerous affordable housing locations through the City of Los Angeles to better understand vehicular trip generation

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[19] Trip and Parking Demand Study, Infill and Complete Streets: Capturing VMT Impacts and Benefits Pursuant to California Environmental Quality Act, City of Los Angeles Department of Transportation, April 2017.

and parking demand characteristics of affordable housing uses in Los Angeles. Key findings from the study indicate the following:

- Observed parking demand ratios were found to be higher for the affordable family units relative to the senior, special needs, and permanent supportive units.
- Observed parking demand ratios for each of the subcategorizations of the affordable housing survey sites (by affordable housing type and by transit proximity) are lower than the Los Angeles Municipal Code (LAMC) parking requirement for apartments.
- Observed parking demand ratios for family affordable housing range from 0.82 to 0.85 spaces per unit and are lower than the parking requirements under the LAMC Affordable Housing Density Bonus Option 2 (LAMC 12.22A.25(d)(2)) for restricted affordable units (one space per unit).
- The empirical parking demand ratios for senior, special needs, and permanent supportive affordable housing range from 0.20 to 0.48 spaces per unit and are lower than the parking requirements under the LAMC Affordable Housing Density Bonus Option 2 (LAMC 12.22A.25(d)(2)) for units restricted to low or very low-income senior citizen or disabled (0.5 spaces per unit).
- Observed parking demand ratios are lower for units located within a transit priority area (within one half of a mile walking distance from transit) than for units located outside of a transit priority area for the senior, special need, and permanent supportive units but not for the family units.

In a similar study conducted for City of Palo Alto[20], Fehr & Peers surveyed parking demand for multi-family development including market rate, affordable, and senior housing projects at sites located at various distances to transit. The following trends were observed:

- The lowest parking demand rates were observed at the Senior Housing complexes and the highest at a Market Rate complex.
- The parking demand rates seem to be correlated with proximity to transit for both Affordable and Market Rate apartments.

Table 2 provided below compares current requirements to actual parking demand rates:

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[20] *Staff Report, Planning & Transportation Commission, City of Palo Alto: Multi-Family Parking Demand Technical Memo, May 2018*

### Table 2: Current Requirements Vs Actual Parking Demand Rates

| Multi-Family Housing Type | Current Requirement | Actual Parking Demand Rate | Reduction for Proximity to Transit |
|---|---|---|---|
| *Market Rate* | 1.25 spaces per studio, 1.5 spaces per 1-bedroom unit 2 spaces per 2+ bedroom unit | 0.75 spaces per bedroom | 25% |
| *Affordable Housing* | See market-rate, plus 20-40% reduction depending on affordability | 0.55 spaces per bedroom | 25% |
| *Senior housing* | See market-rate, plus up to 50% reduction | 0.34 to 0.69 spaces per bedroom | none |

*Source: Staff Report, Planning & Transportation Commission, City of Palo Alto: Multi-Family Parking Demand Technical Memo, May 2018.*

To avoid parking oversupply and its associated negative long-term effects on travel behavior and land-use development trends and patterns, agencies are looking at changes to codes, policies, and adoption strategies that strive to optimize both public-owned and private parking. Todd Litman, in his book *Parking Management Best Practices*[21], identified the following strategies used by some agencies:

- Eliminating minimum parking requirements – This policy change would not eliminate parking supply for new developments. Rather, it simply allows developers to decide how many spaces to build based on market demand. This policy is intended to lead to an efficient and equitable parking market in which households only pay for the number of spaces they need. However, this strategy could lead to spillover parking, so other forms of regulation and enforcement are key for this policy to be effective.
- Applying parking reduction adjustment factors – This approach involves reducing parking requirements by a specific adjustment factor to account for various contextual factors that are known to influence travel behavior, vehicle ownership, and mode share. These factors include geographic location, residential density, employment density, land-use mix, transit accessibility, carsharing, walkability and bikeability, demographics, income, housing tenure, pricing, sharing/overflow, parking, and mobility management, etc. This approach reduces the risks associated with eliminating minimum parking requirements, but still enables developers to avoid over-supplying parking to save costs and put pressure on on-street parking resources.

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[21] Parking Management Best Practices, Todd Litman, 2006.

Table 3 below summarizes typical adjustments to account for the above factors:

### Table 3: Typical Adjustment to Parking Requirements to Recognize Contextual Factors

| Factor | Description | Typical adjustments |
|---|---|---|
| *Geographic location* | Vehicle ownership and use rates in an area | Adjust parking requirements to reflect variations identified in census and travel survey data. |
| *Residential density* | Number of residents or housing units per acre/hectare | Reduce requirements 1 percent for each resident/acre; 15-percent reduction at 15 residents/acre; and 30-percent reduction at 30 residents/acre |
| *Employment density* | Number of employees per acre | Reduce requirements 10 to 15 percent in areas with 50 or more employees per gross acre. |
| *Land use mix* | Mix of land uses in an area | Reduce requirements 5 to 10 percent in mixed-use areas. Include additional reductions if this results in shared parking. |
| *Transit accessibility* | Nearby transit service frequency and quality | Reduce requirements 10 percent within one-quarter mile of frequent bus service and 20 percent within one-quarter mile of a rail transit station |
| *Car sharing* | Whether a car sharing service is located nearby | Reduce residential requirements 5 to 10 percent if a car sharing service is located nearby |
| *Walkability* | Walking environment quality | Reduce requirements 5 to 15 percent in walkable communities and more if walkability allows for more shared and off-site parking |
| *Housing tenure* | Whether housing is owned or rented | Reduce requirements 20 to 40 percent for rental versus owner-occupied housing. |
| *Pricing* | Parking that is priced, unbundled, or cashed out | Reduce requirements 10 to 30 percent for cost-recovery pricing (such as parking priced to pay the full cost of parking facilities). |
| *Parking and mobility management* | Parking and mobility management programs are implemented at a site | Reduce requirements 10 to 40 percent at work sites with effective parking and mobility management programs. |
| *Contingency-based planning* | Use lower-bound requirements and implement additional strategies if needed | Reduce requirements 10 to 30 percent and more if a comprehensive parking management program is implemented. |

Source: Parking Management: Strategies, Evaluation, and Planning, Todd Litman, September 2008.

## Next Steps

The above literature review highlights the need of a pragmatic and context-sensitive approach such that parking requirements reflect the multimodal nature of current and future mobility, becoming a driver of economic growth, while promoting equity and sustainability in communities in Utah. Next, we will summarize case studies of up to five different communities and investigate the parking problems these communities tackled with policy solutions and strategies. We will review their implementation plan, post implementation effects, and lessons learned.

# Appendix B1 - Parking Economic Analysis - Case Studies

## Utah Parking Modernization Initiative

# Case Studies

| | |
|---|---|
| **Date** | July 2022 \| DRAFT |
| **To** | Anjum Bawa, Fehr & Peers |
| **From** | Brian Vanneman and Jennifer Shuch, Leland Consulting Group |

## Introduction

LCG was engaged by Wasatch Front Regional Council as part of a multi-disciplinary team led by Fehr & Peers to provide WFRC with a better understanding of the impacts of parking on livability, economic vitality, transportation, and the climate. LCG is working as a subcontractor for Fehr & Peers to complete this work, focusing on tasks 3 and 4 in the scope of work. This memo specifically focuses on task 3 by presenting case studies supporting a variety of parking modernization strategies and summarizing the major takeaways of these examples. LCG used land use and economic data to illustrate the change over time in these case study areas.

This document is organized as follows:

## Regional Vision and Goals

### Strategies

The Wasatch Front regional vision is a set of community-informed goals that WFRC uses to plan transportation investments, development patterns, and economic opportunities. The **four key Wasatch Choice Vision strategies** are:

- Provide Transportation Choices
- Support Housing Options
- Preserve Open Space
- Link Economic Development with Transportation and Housing Decisions

Modernizing the region's parking strategy is an essential component of all four key strategies. The case studies below demonstrate how replacing parking with a mix of productive uses improves walkability and livability while increasing economic activity and providing much needed housing. In areas that are already adjacent to transit lines, reducing parking can encourage transit ridership and the use of micro-mobility options like bike or scooter share.

**Table 1. Employment of Wasatch Choice Vision Strategies in Case Studies**

| | Provide Transportation Choices | Support Housing Options | Preserve Open Space | Link Economic Development with Transportation & Housing Decisions |
|---|---|---|---|---|
| **Belmar** | Yes | Yes | Yes | Yes |
| **Orenco Station** | Yes | Yes | Yes | Yes |
| **Promenade of Wayzata** | No | Yes | Yes | Yes |
| **Hassalo on 8ᵗʰ** | Yes | Yes | Yes | Yes |
| **Hollywood Library** | Yes | Yes | No | Yes |
| **Brewery Blocks** | Yes | Yes | No | Yes |
| **Old Pasadena** | No | No | No | Yes |
| **Fayetteville** | Yes | No | No | Yes |
| **Residential Infill** | Yes | Yes | Yes | Yes |
| **Right Size Parking** | Yes | Yes | No | Yes |

**Figure 1. Benefits of WFRC's Wasatch Choice Vision**



*Source: WFRC.*

## Fiscally Responsible Communities and Infrastructure

A key benefit of WFRC's Wasatch Choice Vision is fiscally responsible communities and infrastructure. In the examples below—particularly examples such as Belmar, the Promenade of Wayzata, and Hassalo on 8th, where under-used surface parking was converted to more active and productive uses—new development increases public-sector (e.g., city) revenues without requiring the development of new transportation or utility infrastructure.

New residential, commercial, and mixed-use construction that takes place on existing parking lot sites is fiscally responsible and benefits municipalities both during and after construction.

During construction, materials purchased by the contractors working on the project are subject to state and local sales tax. Sales tax is the largest source of revenue for municipalities in Utah, as shown in Figure 2 below.

Post-construction, projects usually increase both the city's property tax and sales tax revenue, particularly if the development is on space that was previously used for an inactive use like parking. Utah's Truth in Taxing law limits the ability of cities to increase revenue from property taxes. However, new growth is not subject to the Truth in Taxing law. Therefore, building new residential and commercial space increases property tax revenue and allows municipalities to be less dependent on the state for expenditures like school funding.

**Figure 2. Typical municipal revenue sources in Utah municipalities (2005)**
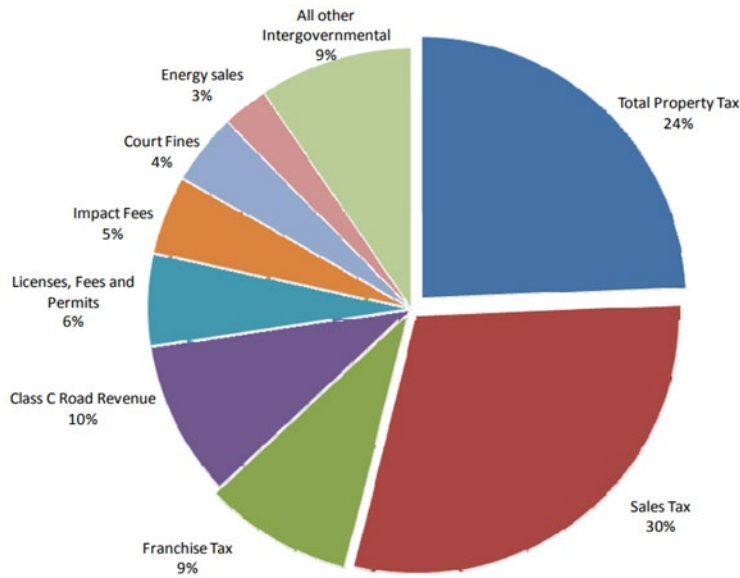


*Source: Utah League of Cities and Towns.*

There are also opportunity costs to providing too much surface parking. Surface parking lots reduce walkability and green space while preventing the development of uses that support residents and businesses and provide tax revenue to cities.

**Figure 3. Basic Levy Scenarios for School Funding**



**Basic Program Helps Equalize Property Tax Disparities**

| | District A (More Property Tax) | District B (Less Property Tax) |
|---|---|---|
| Value of WPU............$3,800 | | |
| No. of WPUs..............10,000 | | |
| **Basic program.... $38,000,000 statutory entitlement** | | |

State Funds: $6,000,000 (District A), $30,000,000 (District B)
Basic Levy Property Tax Revenue: $32,000,000 (District A), $8,000,000 (District B)

The Basic School Program guarantees each school district and charter school the amount of revenue generated by its number of weighted pupil units (WPUs) multiplied by the value of the WPU.

Each school district imposes a uniform statewide property tax rate, called the basic levy.

The state allocates the remaining revenue required to fully fund the statutory WPU allocation, after accounting for revenue generated by the basic levy.

■ State Funds (Mostly Income Tax)
■ Basic Levy Property Tax Revenue

| | District A | District B |
|---|---|---|
| Net Taxable Value (Property Tax Base).... | $20,000,000,000 | $5,000,000,000 |
| Basic Levy (Tax Rate)..................... | 0.001600 | 0.001600 |
| **Basic Levy Yield (Property Tax Revenue)** | **$32,000,000** | **$8,000,000** |

Source: Kem C. Gardner Policy Institute

*Source: The University of Utah.*

Both new retail and residential generate sales tax. When retail is built on a former parking lot, an area that was not previously producing revenue generates both property tax and sales tax. Typically, multifamily buildings are expected to only contribute to property tax revenue. However, roughly 20% of retail sales now take place online. Utah collects sales tax from all online retailers with a nexus in Utah. As of January 1, 2019, vendors who make over $100,000 in sales in Utah or process more than 200 in-state transactions have a nexus. While this may exempt some smaller out-of-state artists and artisans, most major online retailers contribute sales tax to the state, which is then distributed to various city and county programs. This indicates that new housing will result in increased sales tax revenue for municipalities.

In addition, redeveloping sites that formerly housed big box stores with large parking lots into more dense, productive uses also makes fiscal sense, as these stores typically do not contribute enough tax revenue to pay for the infrastructure that supports them. An article in *Strong Towns* cites an analysis by Urban3 that found that a 220,000 square foot Walmart on 34 acres of land contributes $6,500 in property taxes per acre, while a 54,000 square foot building on a 0.19 acre lot contributes $634,000 in property taxes per acre. While in this example the comparison is between downtown and greenfield sites, the case studies below demonstrate that dense, walkable development can be achieved on these large sites, especially those served by transit. Redeveloping large surface parking lots into denser, more productive uses is a fiscally responsible use of infrastructure.

# Case Studies

## Mixed Use, Infill, and TOD Projects

### Belmar – Lakewood, Colorado

Both Provo Town Center and Lehi are heavily parked commercial centers with the potential to become thriving mixed-use communities. Lakewood, Colorado provides a potential example for these communities to follow with the redevelopment of the Villa Italia regional mall into what is now Belmar. Villa Italia was a 104-acre site with 1.2 million square feet of commercial space built in 1966.

**Figure 4. Villa Italia prior to Redevelopment**



**Figure 5. Belmar after Redevelopment**

**Figure 6. Belmar Master Plan.**



*Source: Van Meter, Williams, Pollack LLP.*

**Figure 7. Square footage of uses and value comparison of Villa Italia and Belmar.**
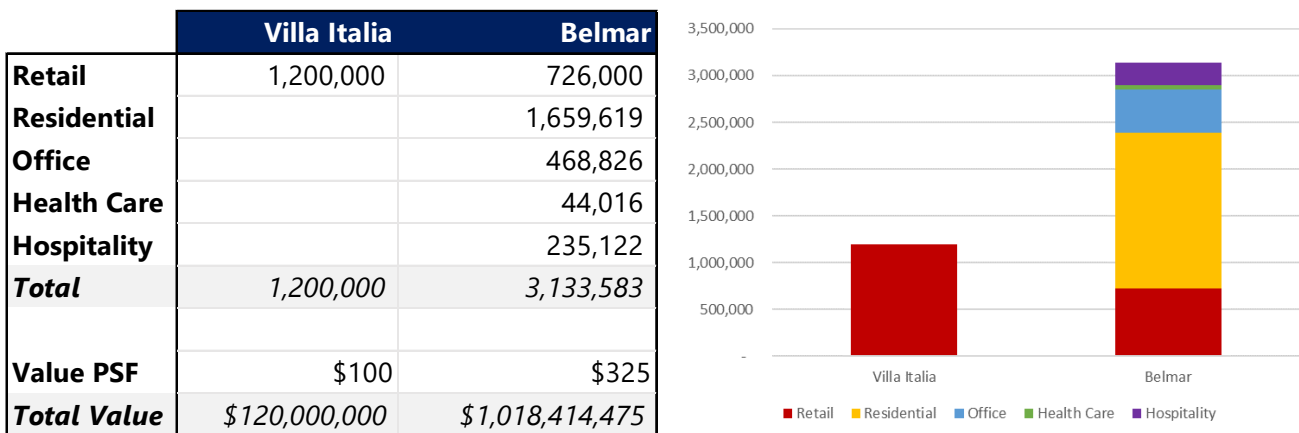
| | Villa Italia | Belmar |
|---|---|---|
| **Retail** | 1,200,000 | 726,000 |
| **Residential** | | 1,659,619 |
| **Office** | | 468,826 |
| **Health Care** | | 44,016 |
| **Hospitality** | | 235,122 |
| *Total* | *1,200,000* | *3,133,583* |
| | | |
| **Value PSF** | $100 | $325 |
| *Total Value* | *$120,000,000* | *$1,018,414,475* |



*Source: Leland Consulting Group. Note: Belmar data is as of 2018.*

The vast, sprawling parking lots that had surrounded the Villa Italia shopping center were converted into mixed use buildings with space for retail, housing, office, health care, and hospitality. The redevelopment was a public private partnership between the City of Lakewood and the developer, Continuum Partners. The City used Public Improvement Fee and Tax Increment Financing to direct $95 million to site infrastructure and preparation and in exchange got a new thriving downtown area. As a result of the redevelopment, the value of the site increased from $120 million to $1.02 billion. While it is still a shopping district, it is significantly more walkable and offers spaces for public gatherings. The site still includes a significant parking element, with 2,500 surface and 2,500 structured spaces, but the parking ratio is significantly lower than it had been previously. 5,000 spaces serve 1,048 residential units and nearly 1.5 million square feet of retail, office, health care, and hospitality. This is nearly the same square footage as the building footprints at Provo Town Center, where there are an estimated 10,572 parking spaces.

By significantly reducing the amount of surface parking on site, Belmar was able to become a more attractive and walkable area that people want to visit. Unlike the Farmington and Lehi sample areas, Belmar is not adjacent to a commuter or light rail station, but a number of bus lines have stops on W Virginia and W Alameda Avenues, on the

northern and southern borders of the site. This transportation access helps attract tenants and visitors without maximizing parking area.

The Belmar redevelopment utilizes all of the Wasatch Choice Vision's strategies:

- **Provide Transportation Choices:** Visitors to the site can arrive by bus, car, or foot and the area itself is designed to be walkable. Redeveloping the site's sprawling parking lots with a mix of uses enabled the walkability that is the foundation of the Belmar's success.
- **Support Housing Options:** The site's 1,048 residential units support housing options in an area where many amenities are within walking distance. This walkability was not possible when the site dedicated much of its space to surface parking lots – redeveloping surface parking into a mix of uses activated the space.
- **Preserve Open Space:** Belmar provides community space for public gatherings and festivals.
- **Link Economic Development:** By incorporating a densely developed diverse mix of uses and reducing the land dedicated to surface parking, Belmar increased the property and sales tax revenue generated by the site.

## Orenco Station – Hillsboro, OR

Orenco Station is a development in Hillsboro, Oregon with 110 acres of mixed-use development on approximately 135 acres of land. Orenco Station was first planned in the 1990s and completed in 2016. Hillsboro is a suburb of Portland located in neighboring Washington County, with proximity to major employers like Nike, Columbia Sportswear, and Intel. The Orenco Station development is adjacent to a MAX light rail station at NW 231st Avenue and offers a wide variety of housing types as well as retail, office, and hospitality. Housing at Orenco Station includes detached single family, attached single family, condos, and apartments on 171 acres of land. While Orenco Station does have surface, street, and underground parking, parking is shared between commuters, visitors, and residents to reduce the total number of spaces and maintain walkability throughout the site. In the transit-oriented portion of the site south of Cornell Road, there are 2,979 parking spaces serving 56,730 square feet of commercial space and 1,944 housing units. Parking arrangements in the Platform District, which is directly adjacent to the MAX station, are described in further detail below.

**Figure 8. Land Use Map of Orenco Station in Hillsboro**
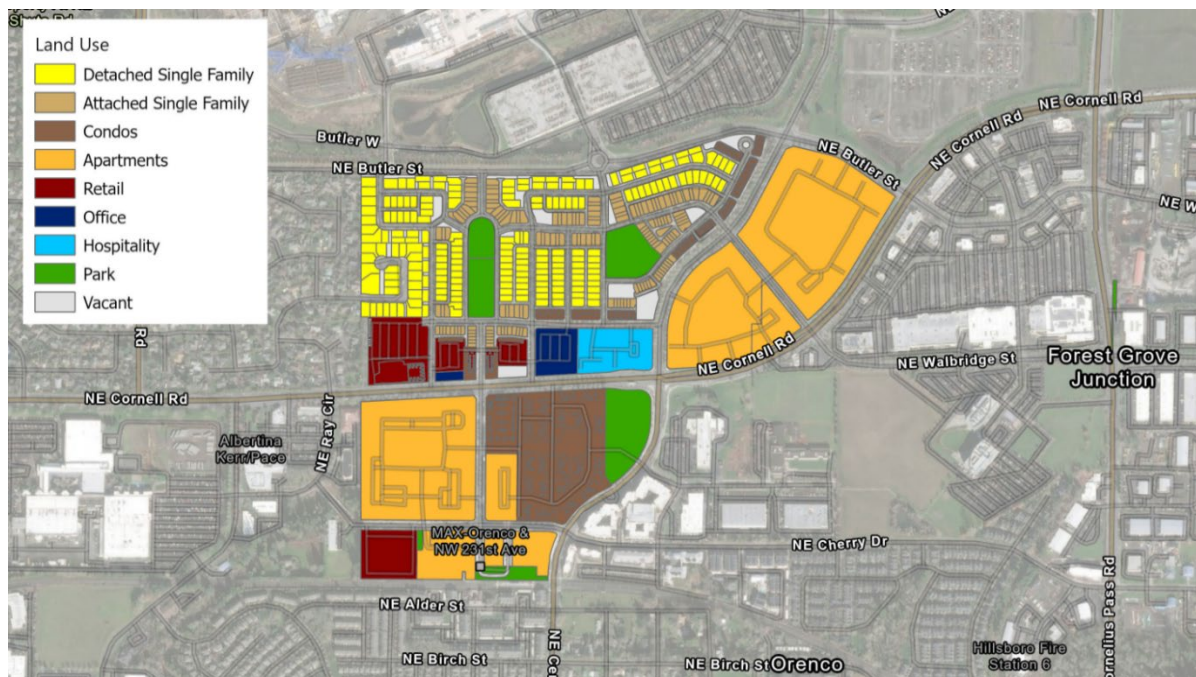
**Figure 9. Low to Medium Density Housing and Surface Parking at Orenco Station.**



Initial development at Orenco Station consisted of single-family homes and 2- to 3-story garden apartments. But during the later phases, developers became more ambitious, constructing slightly taller mixed-use buildings, culminating with the development of the Platform District beginning in 2012. The Platform District is located directly adjacent to the MAX station, offering a mix of housing, retail, and amenities for residents and visitors alike.

**Figure 10. Orenco Station Phase 1**

## North of Cornell Road



1990s
Master Plan
Zoning
Entitlements

1998
Groundbreaking
Single-family and
attached housing
One and two stories

2002
Town Center
Two and three stories

**Figure 11. Orenco Station, Later Phases of Development**

## South of Cornell Road



2008
The Q
Condominiums with
below-grade parking
Two and three stories

2008
The Nexus
Apartments,
Family friendly
Three stories

2012 - 2014
The Platform District
Mixed Use Apartments
4 – 6 stories

The Platform District at Orenco Station utilizes a shared parking model between buildings to reduce parking overall across the site. While parking demand is highest at night for the east and central buildings, it peaks during the day for

the west buildings. By treating these spaces as part of a shared pool rather than use- or building-specific, the Platform District serves residents and visitors without an overabundance of parking.

**Figure 12. The Rowlock at the Platform District at Orenco Station**



*Source: Flickr*

**Figure 13. Map of the Platform District at Orenco Station**
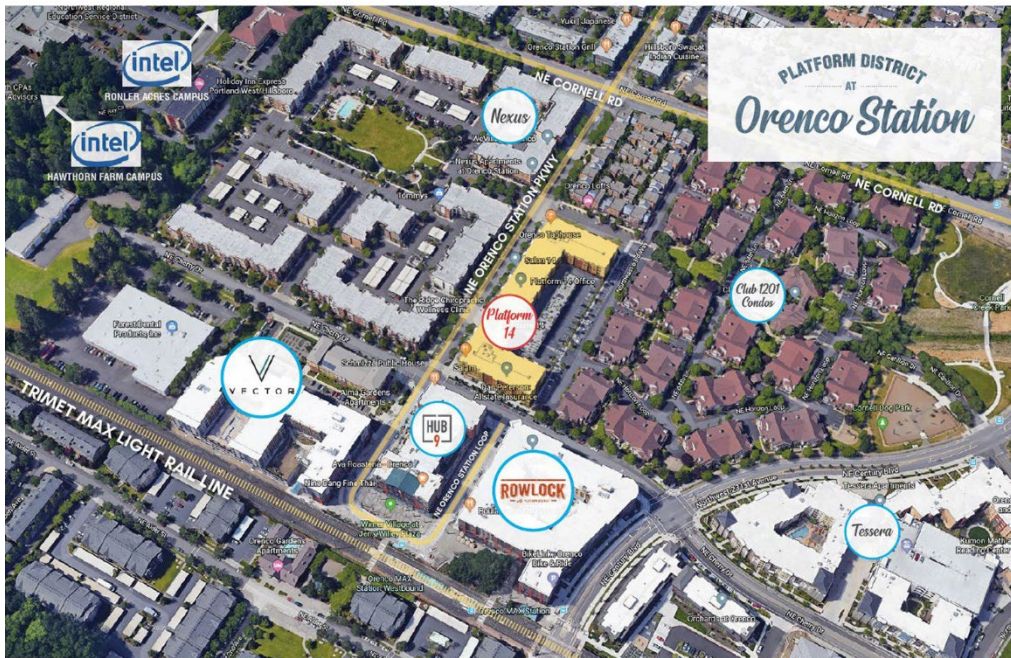


*Source: Loopnet*

**Figure 14. Description of Platform District Buildings**

| Building | Address | Year Built | Apartments | Other Uses |
|---|---|---|---|---|
| Platform 14 | 1030 NE Orenco Station Pkwy, Hillsboro, OR | 2013 | 166 | 11 live-work units; 17,523 sf commercial space |
| Tessera | 6523 NE Cherry Dr, Hillsboro, OR | 2014 | 304 | 6,792 sf retail |
| Rowlock | 6380 NE Cherry Drive, Hillsboro, OR | 2015 | 255 | 9,692 sf retail |
| Hub9 | 980 NE Orenco Station Loop, Hillsboro, OR | 2015 | 124 | 9,118 sf retail |
| Vector | 967 NE Orenco Station Loop, Hillsboro, OR | 2016 | 230 | 6,505 sf retail |

*Source: CoStar, University of Utah*

**Figure 15. Parking Distribution in the Platform District at Orenco Station**

| Building | Parking Location | Park-and-Ride Spaces | Residents-Only Spaces | Spaces per Unit | Public Parking | Total |
|---|---|---|---|---|---|---|
| Vector | 2-level parking structure | 125 | 155 | 0.67 | 100 | 380 |
| Rowlock | 2 level parking structure | | 155 | 0.61 | 105 in structure; 12 on-street | 272 |
| Platform 14 | No parking structure | | 107 | 0.64 | 48 on-street | 155 |
| Tessera | 6-level parking structure | | 381 | 1.25 | 45 on-street | 426 |
| Hub9 | 2-level parking structure | | 121 | 0.98 | 22 on-street | 143 |
| *Total* | | *125* | *919* | *0.83* | *332* | *1,367* |

*Source: University of Utah*

**Figure 16. Location of parking in Platform District at Orenco Station**
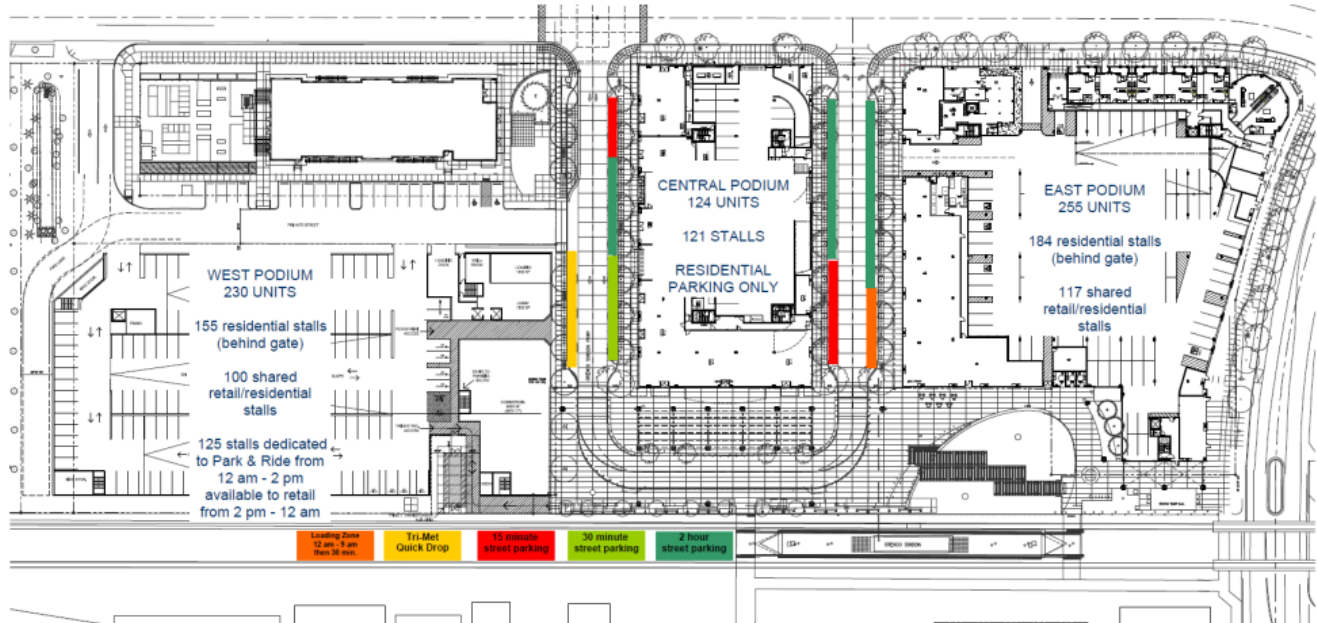


*Source: University of Utah*

The buildings in the Platform District offer parking that can be shared between different users. For Rowlock, this shared parking is both on street and located on the first floor of the parking structure. Vector's first-floor park-and-ride parking is available to retail customers between 2:00 PM and 12:00 AM. Platform 14 and Tessera both offer shared parking for retail and residential tenants on the first floor of their parking structures.

Despite a relatively low parking ratio, parking occupancy rates at Orenco Station are low, especially for residential parking.

**Figure 17. Parking Occupancy Rates throughout the Day at Orenco Station**
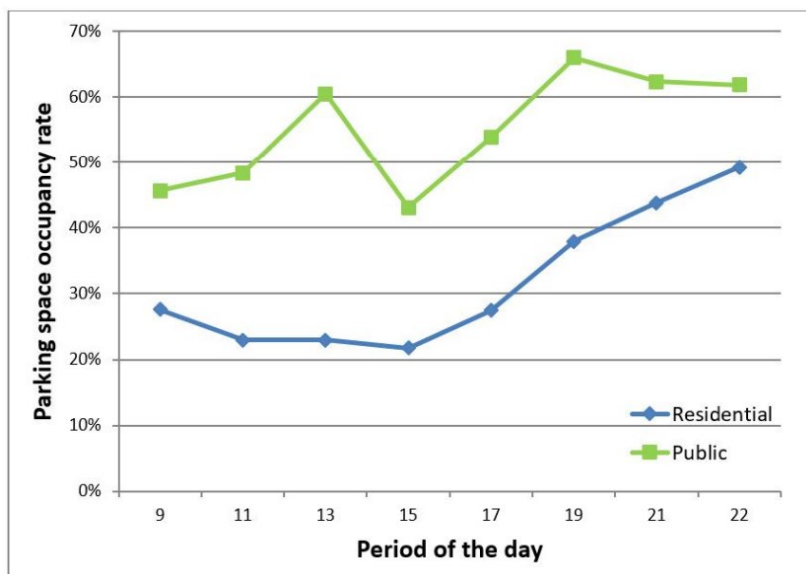


*Source: University of Utah*

In 2016, F. Kaid Benfield of PlaceMakers LLC evaluated suburban New Urbanist developments, finding that Orenco Station was more successful than other suburban mixed-use districts in the study in reducing carbon emissions. Although Orenco Station is located 15 miles from Portland, carbon emissions from transportation per household were 0.54 tons per month, 23% below the regional average. Orenco Station's per-household transportation carbon emissions were lower than developments closer to major cities, like Glenwood Park in Atlanta and Highlands' Garden Village in Denver.

The Orenco Station development, particularly the TOD area that includes the Platform District, utilizes most of Wasatch Choice's key strategies:

- **Provide Transportation Choices:** Orenco Station was built as transit-oriented development directly adjacent to a MAX stop. By sharing parking between residential and park and ride users, the development prioritizes light rail over cars and dedicates less space to unproductive surface parking.
- **Support Housing Options:** Orenco Station has added significantly to the city of Hillsboro's housing supply, and the site's density, mix of uses, and limited parking result in lower greenhouse gas emission per household.
- **Preserve Open Space:** The site was previously a plant nursery, and while most of the site was built up the northern portion of the site includes large community green spaces.
- **Link Economic Development:** By incorporating retail, office, and hospitality uses into a site that is primarily transit-oriented housing, the site reduces auto emissions and provides jobs and amenities to the surrounding community without the need for vast surface parking lots.

**Links**

- University of Utah – Comparative Case Studies: Trip and Parking Generation at Orenco Station TOD, Portland Region and Station Park TAD, Salt Lake City Region
- HuffPost – The Environmental Impacts of Land Development Depend Largely on Where We Put It

## The Promenade of Wayzata – Wayzata, MN

**Figure 18. The Wayzata Bay Center Prior to Redevelopment as The Promenade of Wayzata**



*Source: Twin Cities Business.*

**Figure 19. The Promenade of Wayzata in 2019**



*Source: State of Minnesota.*

The Wayzata Bay Center was a shopping center built in the 1960s on a 14.5-acre, 5-block site in an affluent Minneapolis suburb located along Lake Minnetonka. It was constructed on wetlands without a stormwater system, and contaminated stormwater runoff from the shopping center's vast parking lots regularly ended up in Lake Minnetonka. A joint venture between BohLand Companies, Presbyterian Homes, and the Wayzata Bay Redevelopment Company spent $342 million redeveloping the site as a mixed-use neighborhood with two condominium properties, senior and assisted living facilities, office and commercial space, a hotel, and a community Great Lawn. The project was completed in 2017.

**Figure 20. Site diagrams of the Wayzata Bay Center and the Promenade of Wayzata**
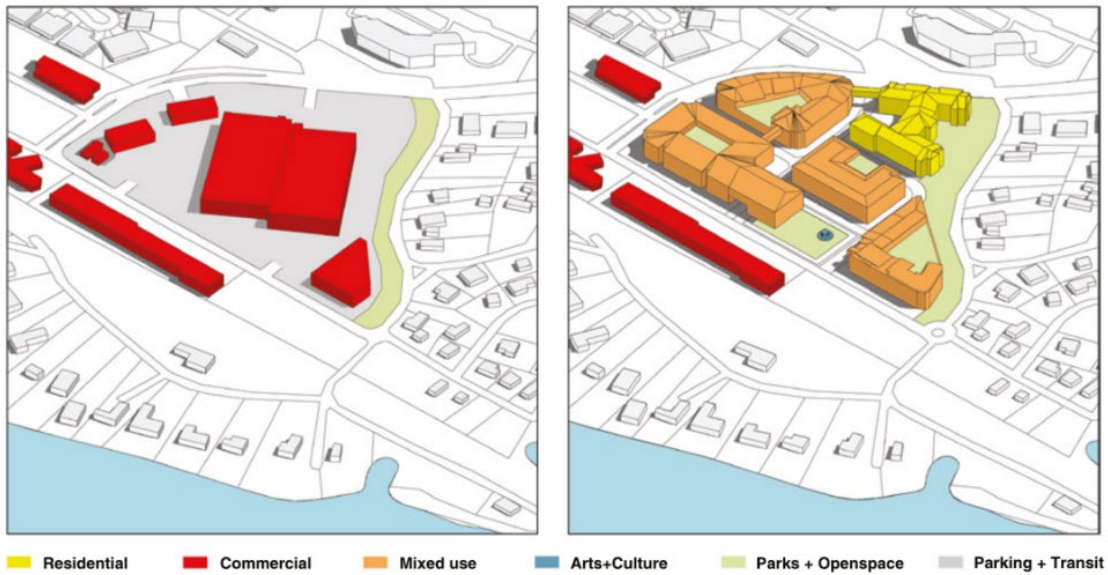


*Source: June Williamson & Ellen Dunham-Jones, "Case Studies in Retrofitting Suburbia" (2021).*

When it was first approved by the Wayzata City Council in 2008, it was controversial within the community due to its size. The project includes 326 units of senior housing, 118 condos, 26 apartments, over 200,000 square feet of retail, a 92-room hotel, and parking. When the 30-unit Nine TwentyFive condo building was completed in 2017 units were listed for between $825,000 and $4 million dollars. The shopping center that previously occupied the site included 33 stores and two additional buildings. Despite the addition of significant commercial, office, and multifamily square footage, the site has just 1,500 parking spaces. That is roughly 1 parking space per 500 square feet of development. In order to address stormwater issues, the developers incorporated under-street infiltration and filtration systems, a stormwater wet pond, green roofs, and heated boulevards that reduce the need for deicing chemicals in the winter.

**Figure 21. Land Use Distribution, Wayzata Bay Center vs. Promenade of Wayzata**
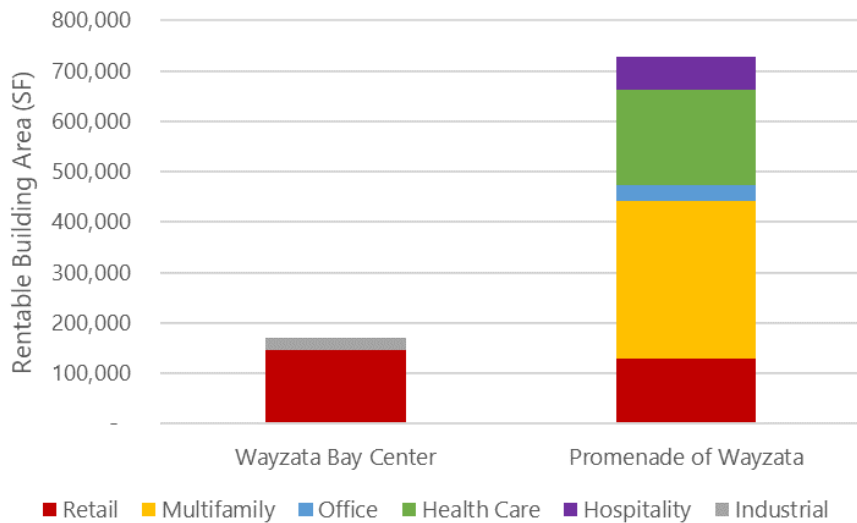


*Source: CoStar, Dan Ionescu Architects & Planners. Note: this does not include condominiums.*

In their profile of Wayzata, MN in 2019, healthcare real estate company Davis attributed the city's population growth, which outpaced regional and county growth, to senior housing development. As of 2020, the Folkestone senior housing complex at the Promenade had a five-year waiting list. The ongoing success of the Promenade at Wayzata development generates both sales and property tax for the city, contributing significantly more financially than the Wayzata Bay Center was by 2008. In addition, the environmental costs of stormwater runoff to the lake have been significantly reduced.

While the Promenade of Wayzata is not transit-oriented development, the aim of the redevelopment was to create an amenity-rich community that encouraged walkability over auto use. As a result, this project utilizes three of the Wasatch Choice key strategies:

- **Support Housing Options:** The Promenade of Wayzata offers a wide variety of housing, including apartments, condos, senior living (55+), and assisted living. The location of this housing in a mixed-use community allows residents to live car-free, enabling more interaction between neighbors.
- **Preserve Open Space:** The former site was a mall surrounded by parking lots without green space or adequate stormwater drainage, which contributed to pollution in the nearby lake. The redevelopment project includes community green space and small ponds that help with stormwater management.
- **Link Economic Development:** This project incorporates elements that improve its environmental resiliency and help improve the air and water quality. Replacing the hardscaped surface lot with stormwater systems, green roofs, and wetlands greatly reduce stormwater runoff into the lake, helping to maintain a healthy ecosystem. In addition, the site's walkability reduces auto dependence and improves air quality.

**Links**

- Dan Ionescu Architects & Planners – Wayzata Bay Center Redevelopment, Minnesota, General Plan
- Finance & Commerce – Top Projects of 2018: The Promenade of Wayzata
- StarTribune – Wayzata Redevelopment Project Nears End
- StarTribune – After 5 Years and $342M, Wayzata Set to End Its Largest Redevelopment Project Ever
- Minnesota Stormwater Manual – Chlorine Reduction Case Study: The Promenade of Wayzata
- The New York Times – Once Meccas of Retail Therapy, Now Homes to Elder Americans
- Davis – Wayzata at a Glance
- June Williamson & Ellen Dunham-Jones – Case Studies in Retrofitting Suburbia

## Hassalo on 8th – Portland, OR

The Lloyd District is a transportation-rich neighborhood in Northeast Portland that was home to a mall and several office buildings but relatively few residents. According to the city's Lloyd District Development Strategy, which was published in 2001, the Lloyd District was home to 15,000 jobs and just 1,000 housing units at that time. The city set a goal of creating a 24-hour community with affordable housing, pedestrian infrastructure, and access to transit.

**Figure 22. The City of Portland's 2001 Map of the Lloyd District**
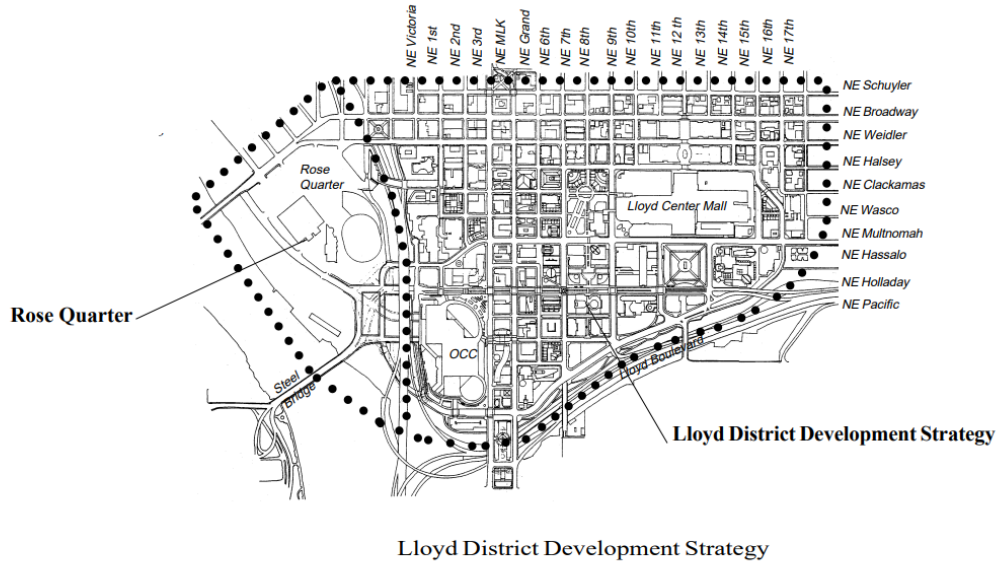


*Source: City of Portland.*

**Figure 23. The Hassalo on 8th**



*Source: Next Portland.*

In 2015, developer American Assets Trust completed the redevelopment of a superblock surface parking lot into what is now known as the Hassalo on 8th and the Lloyd 700 office building. The Hassalo on 8th is a complex of three mixed-use buildings on a three-acre site. It includes 657 residential units (592,600 square feet of housing), and 58,100 square feet of retail. The Lloyd 700 office building includes 271,600 square feet of office space. The Hassalo on 8th shares a 3-story garage with the Lloyd 700 building, but American Assets Trust envisioned that the future residents of The Hassalo on 8th would be bike fanatics. At the time it opened, it had North America's largest bike parking facility with space for 1,200 bicycles. There is a "bike hub" with 820 spaces as well as secured bike parking in the residential buildings. The bike hub has an on-site valet service with optional tune-up services, a bike work room, bike washing area, vending machines for bike parts, and shower and locker room facilities. Non-tenant members of the public can pay for access to the bike hub.

**Figure 24. The Bike Hub in the Lloyd 700 Building**



*Source: Bike Portland*

The site's proximity both to transit and bike lanes enabled American Assets Trust to focus primarily on bike parking facilities while sharing some garage space between the Hassalo on 8th and the Lloyd 700 office building. Hassalo on 8th is an example of a project that utilizes all four Wasatch Choice Strategies:

- **Provide Transportation Choices:** Residents are encouraged to take advantage of active transportation through ample bike parking and bike-related facilities as well as nearby transit and bike infrastructure. By activating transit adjacent surface parking with new uses, the Hassalo on 8th development increased activity without increasing auto dependence.
- **Support Housing Options:** Although the Lloyd District is just across the river from Downtown Portland and adjacent to transit, it lacked housing. The Hassalo on 8th proved that the Lloyd District could support large mixed-use developments with ample housing without the need to retain the existing surface parking lots.
- **Preserve Open Space:** Pedestrian plazas and pathways through the site provide open space for residents and visitors. The site was previously a parking lot, so the open space was created rather than preserved.
- **Link Economic Development:** The Lloyd District is a transit-rich neighborhood that is adjacent to job centers both Downtown and on the East Side of Portland. The surface parking lots that were previously on site did not

contribute to the livability, walkability, or economic activity in the Lloyd District. Activating those underutilized lots by adding housing to this neighborhood decreases commuting time for residents and reduces the need for a car. By emphasizing bike and transit commutes over car commutes, the Hassalo on 8th will help reduce auto emissions over time.

**Links**

- [Next Portland – Hassalo on Eighth, Part I](#)
- [ULI – Hassalo on Eighth](#)
- [Portland Development Commission – Lloyd District Development Strategy](#)
- [Bike Portland – Portland's Biggest, Baddest Bike Parking Facility Is about to Open](#)
- [GBD – Lloyd Blocks](#)


## Hollywood Library – Portland, OR

**Figure 25. Hollywood Library/Bookmark Apartments**



*Source: Bookmarkapartments.com*

The Hollywood Library and Bookmark Apartments was built in 2002. It includes a 13,000 square foot library branch, an 815 square foot coffee shop, and 47 units of housing (19 affordable units and 28 market rate). The library, café, and apartments share 28 total parking spaces, a ratio of 0.6 spaces per apartment unit. Nine additional parking spaces are exclusively for Dania Furniture, a store located next to the library. The low number of parking spaces enabled higher density and lower building costs. Because the building was intended for civic use as a branch of the Multnomah County Library, design and construction quality standards were high. In 2002, rents in the Hollywood District were not high enough to support the quality of construction but reducing the parking on site enabled the developer to save on project costs. It was not enough to fully make up the difference, but it reduced the gap that needed to be filled by other funding sources. The library is located near the Hollywood Transit Center and 42nd Avenue MAX station, and there is also frequent bus service on Sandy Boulevard.

Although in 2002 rents in the Hollywood neighborhood were not high enough to cover construction costs, rents have risen substantially over time. As of June 2022, rents in CoStar's Central Northeast Multi-Family submarket were $1.74 per square foot. Rents at the Bookmark Apartment that same month were between $2.01 and $2.49 per square foot depending on the unit. The vacancy rate in the Central Northeast submarket is 3.9%, below the Portland market average of 4.5%. The low parking ratio is not impacting the Bookmark's ability to attract tenants in the vibrant, transit-oriented Hollywood neighborhood.

While the Hollywood Library and Bookmark Apartments did not add any open space to the community, this project utilizes three of the four Wasatch Choice key strategies:

- **Provide Transportation Choices:** The Hollywood Library/Bookmark Apartments' proximity to bus transit on Sandy as well as the Hollywood Transit Center MAX station reduced the need for parking on site. Residents are able to walk to community amenities or use public transportation to reach other parts of the city.
- **Support Housing Options:** Because the library was a municipal project, it includes a mix of affordable and market rate housing that is designed to last. By incorporating less parking, the county was able to deliver more transit-adjacent housing units.
- **Link Economic Development:** This project effectively utilized infrastructure to save taxpayer dollars by combining a new library branch with housing in a transit-served neighborhood.

**Links**

- [Oregon Metro – Hollywood Library and Bookmark Apartments](#)

## Brewery Blocks – Portland, OR

**Figure 26. The Brewery Blocks**



*Source: Cairn Pacific*

The Brewery Blocks is a five-block site in Portland's Pearl District bound by NW 10th Avenue, NW 13th Avenue, NW Davis Street, and W Burnside Street. It does not include the Powells flagship location. The Brewery Blocks combines the adaptive reuse of the Weinhard Brewhouse, the Armory Building, and the Chevrolet Auto Dealership with ground up construction of new buildings. Four of the buildings on site are LEED Gold, the fifth is LEED silver. They are located a half mile from MAX stations serving all five light rail lines and are directly adjacent to the Portland Streetcar. The project was completed in 2006 and includes 1.5 million square feet of residential, retail, and office space and 242 housing units. There is a shared underground parking garage under three of the buildings, as shown in Figure 27 below. There are 1,300 parking spaces in the underground garage, a ratio of 0.87 spaces per 1,000 square feet of RBA.

**Figure 27. Map of the Brewery Blocks with Shared Underground Parking Structure**



*Source: Macht – "Multi-Block Underground Shared Parking"*

Shared parking reduced the number of total parking spaces needed, compared to the typical ratios for apartments, office, and retail space. The need for retail, restaurant, entertainment, and residential parking is typically highest in the evening, while office demand is highest during the day. The parking peak for the Brewery Blocks occurs between 10:00 AM and 3:00 PM.

**Figure 28. Parking Counts by Day and Time at the Brewery Blocks**
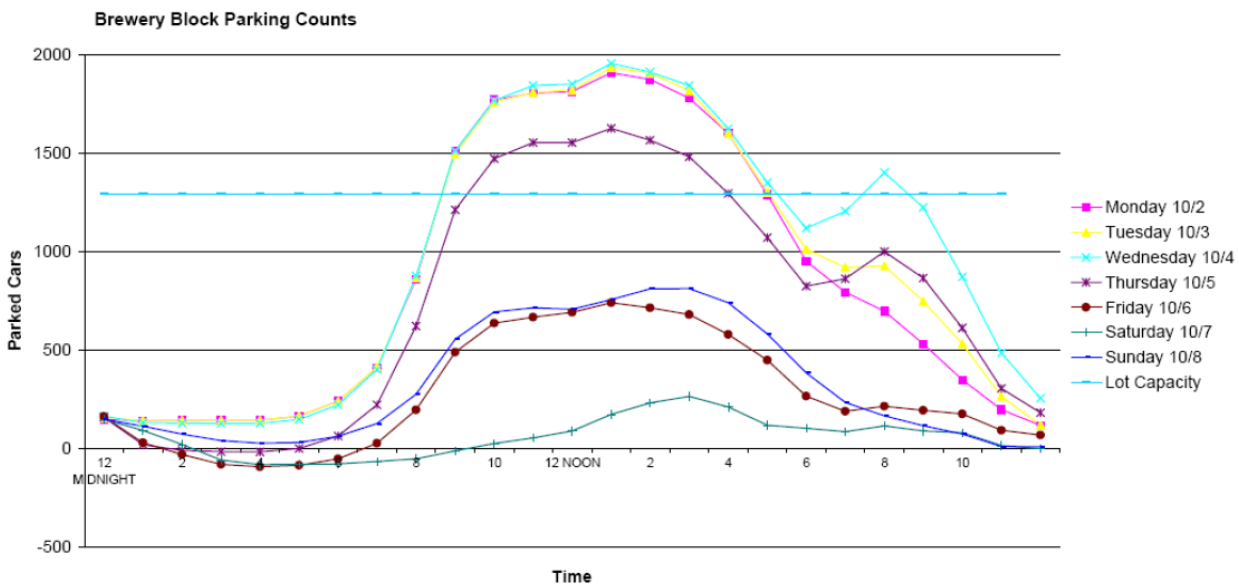


*Source: Macht*

The Brewery Blocks location in one of the city's most transit-rich, walkable neighborhoods reduces the need for parking and its shared parking lot provides some needed parking without reducing productive site area. Although it does not add any green or open space to the Pearl District, the Brewery Blocks utilize the other Wasatch Choice key strategies:

- **Provide Transportation Choices:** The Brewery Blocks are accessible by MAX light rail and the Portland Streetcar as well as by foot or bike. Their central, urban location is adjacent to employment and commercial sites. The shared-parking model enables the site to dedicate less room for cars and encourages residents and businesses to opt for other transportation modes.
- **Support Housing Options:** The Brewery Blocks provide housing in an amenity-rich and desirable neighborhood. While the Pearl District is a relatively expensive neighborhood, it is also one in which residents can easily live car-free. By allocating less room to parking, the Brewery Blocks development was able to include more room for housing and commercial uses.
- **Link Economic Development:** The site's density and its access to amenities by foot and public transportation enable shorter and less expensive travel. It also reduces emissions per household and efficiently utilizes existing infrastructure through infill development.

Links

- [The Brewery Blocks – Green Building Features](#)

## Downtown Parking Plans

### Old Pasadena – Pasadena, CA

Up until 1993, the Old Pasadena downtown area offered free parking with two-hour limits. The city wanted to introduce parking fares to discourage workers in the area from taking up the best curbside spots, freeing them up for customers. But the city faced pushback from business and property owners. In order to gain the support of these constituents, the city announced that it would spend all parking meter revenue on public investments in Old Pasadena. This greatly reduced concerns that shoppers would take their money elsewhere because of the cost of parking. The city established the Old Pasadena Parking Meter Zone (PMZ), where it charged $1 per hour for curb parking, with enforcement 7 days per week. A PMZ Advisory Board, made up of local business and property owners, was appointed to set the spending priorities for meter revenue. The revenue is used primarily for maintenance and cleaning of the streets and sidewalks. After parking meters were installed in 1993, retail sales tax revenue from Old Pasadena increased.

**Figure 29. Retail Sales Tax Revenue for Pasadena (1989-1999).**
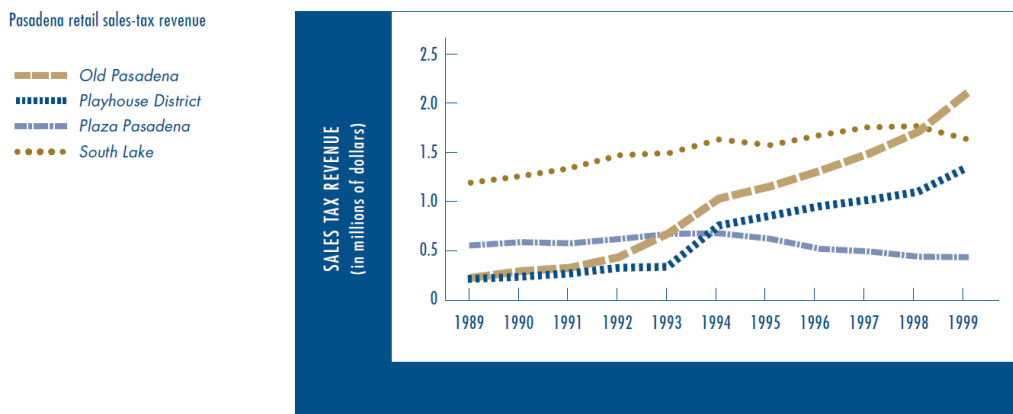
The area that benefits from the parking revenues is now also a Property-Based Business Improvement District (PBID) managed by the Old Pasadena Management District. Buildings within the PBID are taxed based on their location and size, with revenue directed to infrastructure improvements and programming. The OPMD renewed the PBID for a 10-year period in 2015.

**Figure 30. Old Pasadena Property-Based Business Improvement District Map and Formula Table.**



**District Boundaries and Zoning Map**

**Assessment Formula Table 2014-2015**

|  | Land Assessment | Ground Floor | Non-Ground Floor |
|---|---|---|---|
| ZONE 1 | $0.2742 | $0.3235 | $0.1616 |
| ZONE 2 | $0.1383 | $0.2577 | $0.1288 |
| ZONE 3 | $0.1698 | $0.2793 | $0.1395 |
| ZONE 4 | $0.1383 | $0.2577 | $0.1288 |
| ZONE 5 | $0.1992 | $0.2722 | $0.1360 |

*Source: Old Pasadena*

Because the Old Pasadena parking plan is not a redevelopment project, it does not utilize the majority of the Wasatch Choice key strategies. It does, however, demonstrate a link between parking and economic development:

- **Link Economic Development:** Revenue generated by parking fees is used to make the area more walkable and livable. It reduces the demand for parking, encouraging people to visit Old Pasadena via other modes, and invests in community infrastructure.

**Links**

- Old Pasadena – What is a PBID-District Boundaries
- Douglas Kolozsvari & Donald Shoup – Turning Small Change into Big Changes

# City Parking Strategies

## Fayetteville, Arkansas

Fayetteville, a small city of 94,000 residents, became the first city in the US to eliminate commercial parking minimums in 2015. The city removed the minimum parking requirements from city code while leaving maximum parking ratios in effect. Prior to this code change, restaurants were required to provide one parking space per 100 square feet and retail establishments were required to provide one space per 250 square feet. While there was significant pushback from residents and city officials who feared that this change would impact property values and make the city less livable, those expectations have not come to fruition.

The impetus for the parking minimums code change was a trend of underutilized land. Prior to 2015 a handful of businesses including the Fiesta Square movie theater closed, leaving empty parking lots behind. City Alderman Matthew Petty estimated that Fayetteville had three parking spaces per car. City planner Quin Thompson routinely fielded inquiries from developers about empty commercial sites, but projects were not being built. Developers were unable to find a way to redevelop commercial properties on small lots while meeting parking requirements. Since the code change went into effect, many of the formerly empty commercial buildings have been redeveloped. Business owners have found that the significant reduction in parking has not had a negative impact on sales. In addition to revitalizing empty commercial spaces, the policy has led to increased walkability in the downtown area as businesses can cluster closer together without parking lots in between.

**Figure 31. Dickson Street in Fayetteville, Arkansas**



*Source: Sightline Institute*

**Figure 32. A Small Vacant Lot Redeveloped as Housing, Office, and Retail Space in Fayetteville.**



*Source: Sightline Institute*

Fayetteville's program is primarily focused on commercial development, so it does not utilize the Wasatch Choice goal of supporting housing options. But for a small city, Fayetteville has significant transportation infrastructure. The city's two fare-free bus transit systems combined with the elimination of parking minimums reflect the Wasatch Choice transportation and economic development strategies:

- **Provide Transportation Choices:** Both the city-operated Ozark Regional Transit (ORT) bus routes and the University of Arkansas-operated Razorback Transit bus routes operate on a fare-free model. Because the city of Fayetteville was already overparked before parking minimums were eliminated, it is not clear that the elimination of parking minimums will boost bus ridership. But by providing a fare free option, the city is helping to incentivize an alternative to cars.
- **Link Economic Development:** The City of Fayetteville hopes that the elimination of parking minimums will help spur the redevelopment of vacant or underutilized properties and improve pedestrian access to amenities. So far, results have been modest, but over time this plan could make infill development more feasible, helping the city to utilize existing infrastructure more efficiently.

**Links**

- Sightline – No Minimum Parking Requirements? No Problem for Fayetteville, Arkansas
- Fayetteville, Arkansas – Bus Service
- Strong Towns – The Bottom-Up Revolution Is…Ending Parking Minimums and Seeing the Results
- Fayetteville Flyer – Fayetteville Eliminates Minimum Parking Requirements

## Residential Infill Project, Portland, Oregon

In August 2021 a new city-wide policy went into effect in Portland called the Residential Infill Plan (RIP). Rather than impacting a single neighborhood, RIP applies to all low-density residential zones in the city. RIP allows for up to 4 units on each residential lot, or up to 6 units if half are affordable. In order to ensure that land in these neighborhoods is used primarily for people rather than cars, RIP modified the parking rules for residential uses. Under RIP:

- Parking minimums have been eliminated
- Lots with alleys must use those alleys for parking access
- Street-facing garages must be 50% or less of the building façade
- Parking between the front of the building and the street is prohibited
- Paved driveways are no longer required

**Figure 33. Examples of parking allowed under Portland's Residential Infill Project**
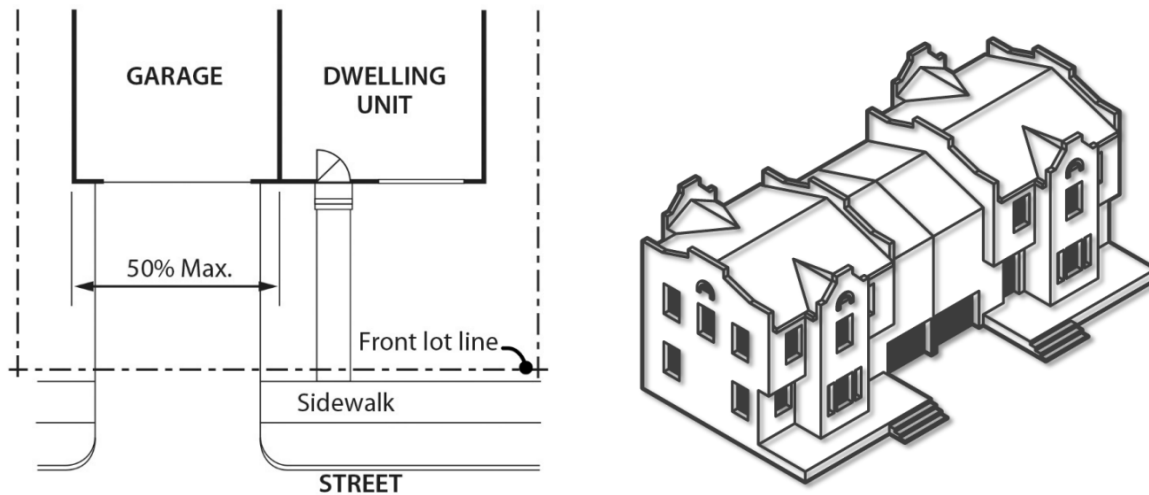


*Source: City of Portland*

Portland's elimination of parking minimums in residential areas came after the passage of statewide middle housing legislation in 2019 that included a limit on how many off-street parking spaces could be required. Under the state's rule, developments in cities located within urban growth boundaries cannot be required to provide more than 1 space per home. The state chose to include this after commissioning an ECONorthwest study that found that requiring parking spaces impacted the feasibility of smaller housing complexes. The study evaluated the feasibility of triplexes and fourplexes in varying market conditions, lot sizes, FAR, and parking arrangements. Garage spaces were estimated to cost $35 per square foot and driveways and surface parking were estimated at $10 per square foot. ECONorthwest concluded that the state should not require more than 1 space per three- or four-unit development in areas where the minimum lot size is under 5,000 square feet. An analysis of statewide vehicle ownership showed that the costs of parking fall disproportionately on renters, who are less likely to own cars.

The Residential Infill Project and its restrictions regarding off-street parking utilize all four of the Wasatch Choice key strategies:

- **Provide Transportation Choices:** The City of Portland has been working to improve bus service throughout residential neighborhoods through the Rose Lane project. As density increases in residential neighborhoods, bus routes will become more efficient, reducing the need for off-site parking spaces.
- **Support Housing Options:** RIP encourages a wider variety of housing types in the city's residential neighborhoods. Its provisions aim to increase the stock and affordability of for-sale and rental homes, and

there are significant bonuses for affordable housing. The feasibility of multi-unit infill housing increases when off-street parking is not required.

- **Preserve Open Space:** By encouraging infill development, RIP will preserve open spaces on the outskirts of the city and increase the availability of housing within a short commute of job centers.
- **Link Economic Development:** While RIP is just a modest increase in density, its aim is to enable more people to live in the city's most desirable neighborhoods closer to jobs, commercial centers, and other amenities. Multi-unit housing is more energy efficient than single family housing, and infill housing takes advantage of existing infrastructure. By limiting off street parking, RIP will hopefully also reduce auto emissions over time.

**Links**

- Portland Bureau of Development Services – Residential Infill Project Code Changes
- Residential Infill Project: Code Change Basics
- Sightline – Oregon Just Ended Excessive Parking Mandates on Most Urban Lots
- ECONorthwest – Summary of Triplex/Fourplex Financial Feasibility Sensitivity Testing for Middle Housing Model Code
- Oregon Department of Land Conservation and Development – Parking and Middle Housing

## Right Size Parking Project, King County Metro Transit

In order to assess the current parking supply and help developers and municipalities determine how much parking should be built, King County issued a report called "Right Size Parking." Along with the report, the county and its partners created the King County Multifamily Residential Parking Calculator, funded by a grant from the Federal Highway Administration's Value Pricing Program. The tool uses statistical modeling to determine the current average parking per unit ratio as well as optimal parking capacity. Users can input building and pricing data to determine how much parking should be built. In addition, a proforma tool allows users to estimate the cost of providing parking.

**Figure 34. King County Right Size Parking Tool**
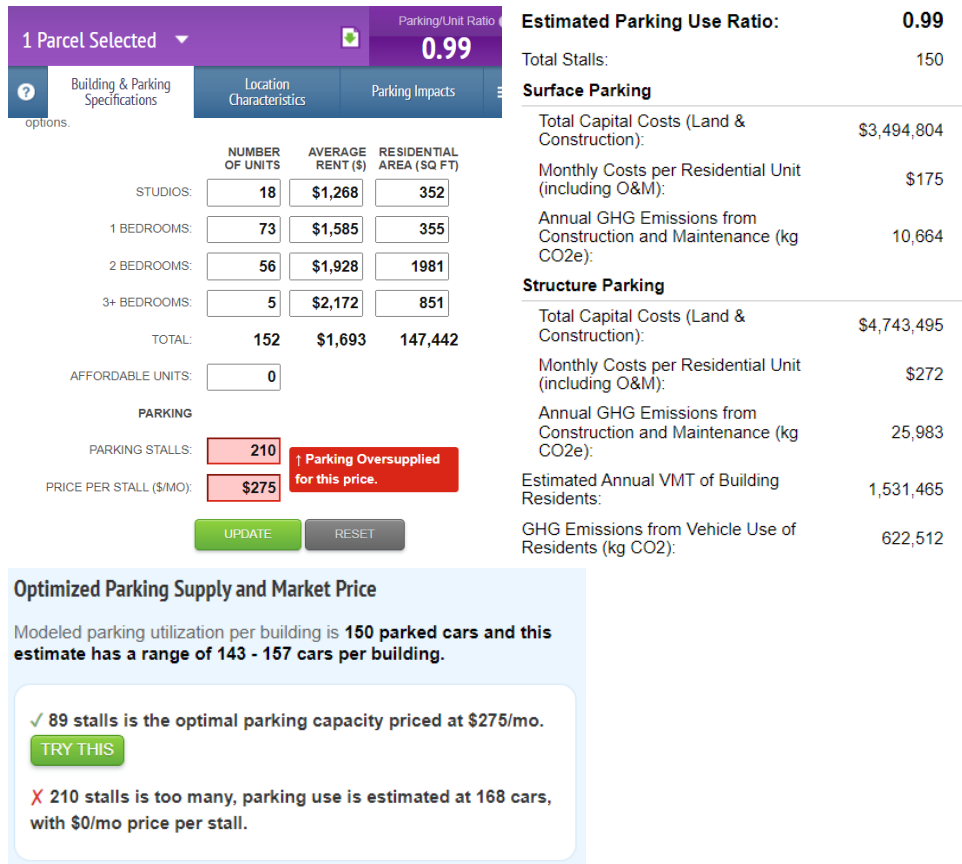


*Source: RightSizeParking.org*

The final report notes that parking increases the cost of market rate housing and reduces the supply of affordable housing. In multifamily housing that provides "free" tenant parking, tenants without cars bear the cost of their neighbors' parking spaces through higher rent. Parking is also extremely costly to provide, and parking fees do not make up the full cost paid by developers. King County has a goal of increasing transit usage and reducing car dependence – giving cities and developers a better understanding of the actual monetary and environmental costs of parking aligns with this mission. The report also found that there was a 40% oversupply of parking at multifamily properties.

Seattle's right size parking initiative, together with improvements it has made to transit in recent years, utilizes three of the four Wasatch Choice strategies:

- **Provide Transportation Choices:** The City of Seattle has made significant transit improvements over the past few years to its bus and light rail service. While the right size parking initiative does not address transportation directly, it helps developers understand the negative impacts parking can have on project feasibility and rents.
- **Support Housing Options:** A major finding of the Right Size Parking report is that tenants without cars bear the cost of their neighbors' parking spaces. Overparking buildings contributes to housing unaffordability, and car ownership is subsidized by those without vehicles, who are likely to be lower income. Right Size parking could help increase the amount of housing that is built (because less land will be taken up by cars) and improve the affordability of housing.
- **Link Economic Development:** The Right Size Parking initiative increases housing options and affordability while reducing auto dependency. Dedicating less space to parking lots will help reduce heat islands, while reducing auto dependence can improve air quality.

**Links**

- [Right Size Parking Final Report](#)
- [King County Multi-Family Residential Parking Calculator](#)

# Summary of Findings and Recommendations

There is a wide variety of ways for the Wasatch Front Regional Council to employ its four key strategies to address parking modernization. The case studies included in this document demonstrate that parking modernization can be achieved at a city, subarea, or project level. Key findings include:

- Strategies such as shared parking or eliminating commercial parking minimums are most successful in walkable areas where there is some access to transit.
- Reducing surface parking frees up land for commercial, residential, green space, and other uses that can make an area more attractive, livable, and economically productive.
- Incorporating green space into parking lot redevelopment can reduce negative environmental impacts like heat island effects and polluted stormwater runoff into natural areas and increase sustainability.
- High parking minimums can limit development or add to the cost of housing units, negatively impacting communities.
- Dense projects with relatively few parking spaces can face pushback from community members due to fears of overcrowding or a loss in business revenues, but such projects, if done well, typically improve the community.
- There is no one-size-fits-all solution – parking modernization may require a more flexible approach based on the needs and existing infrastructure of various communities.
- Business parks like Lehi Thanksgiving Point and malls like Provo Town Center offer exciting opportunities to redevelop large surface parking lots into more diverse, productive, and walkable neighborhoods.

# Appendix B2 - Parking Economic Analysis - Land use, Fiscal, and Economic Data Analysis

WFRC Parking Modernization Initiative

# Economic Analysis | DRAFT

**Date**        November 15, 2022

**To**          Anjum Bawa and Preston Stinger, Fehr & Peers

**From**        Brian Vanneman and Jennifer Shuch, Leland Consulting Group

## Introduction

Leland Consulting Group (LCG) was engaged by Wasatch Front Regional Council as part of a multi-disciplinary team led by Fehr & Peers to provide WFRC with a better understanding of the impacts of parking on livability, economic vitality, transportation, and the climate. LCG is working as a subcontractor for Fehr & Peers to complete this work, focusing on the ways in which parking impacts land use, real estate development, fiscal impacts (municipal revenues) and development economics (Tasks 3 and 4).

LCG conducted an analysis of high-level land use, fiscal impacts, and economic data for a selection of case study areas, demonstrating the land and economic costs of providing parking at a variety of land uses. This analysis is included in a companion memorandum, dated July 2022.

For LCG has compiled a pro-forma analysis of housing, retail, and office projects in order to conceptualize and highlight the capital and ongoing cost of providing parking. In addition, LCG assessed several sample areas within the WFRC to determine how much land is currently dedicated to parking and whether this land could be utilized for other purposes if parking modernization is implemented. Parking modernization strategies include but are not limited to shared parking, ridesharing, and adjusted parking requirements for new developments. LCG used GIS tools and data from CoStar in this analysis of WFRC sample areas.

## WFRC Regional Vision

The Wasatch Front Regional Council has identified four key strategies, the major benefits of which are outlined in Figure 1. These strategies inform land use planning across the four-county region. The Wasatch Choice 4 Key Strategies are:

- **Provide Transportation Choices:** Help us have real options in how we choose to get around and increase the number of easily reached destinations.
- **Support Housing Options:** Support housing types and locations that we can both afford and work best for our lives.
- **Preserve Open Space:** Preserve sufficient and easily accessible open lands that provide us with recreational opportunities.

- **Link Economic Development with Transportation and Housing Decisions:** Create a synergy between these three key building blocks. Enable shorter and less expensive travel to afford us more time and money. Efficiently utilize infrastructure to save taxpayer dollars. Provide housing options and increase housing affordability. Improve the air we breathe by reducing auto emissions.

The WFRC has identified the benefits in Figure 1 as central to their Regional Vision. While parking is not explicitly listed, it has direct impacts on a number of the WFRC's community benefit goals. For example, areas with large parking fields that have negative environmental impacts and reduce walkability would not be described as "livable and healthy communities" with "safe, user-friendly streets." In addition, parking adds to the cost of development, reducing feasibility and leading to increased rents where housing is built. This directly impacts the region's ability to meet its goals regarding "housing choices and affordable living expenses." Finally, requiring developers to build parking at high ratios runs counter to the goal of "fiscally responsible communities and infrastructure" because in limiting what can be built, it reduces the property and sales taxes collected by cities in the region.

**Figure 1. Benefits of the WFRC Regional Vision**



| | | | | |
|---|---|---|---|---|
| Livable and healthy communities | Access to economic and educational opportunities | Manageable and reliable traffic conditions | Quality transportation choices | Safe, user friendly streets |
| Clean air | Housing choices and affordable living expenses | Fiscally responsible communities and infrastructure | Sustainable environment, including water, agricultural, and other natural resources | Ample parks, open spaces, and recreational opportunities |

*Source: WFRC.*

Recommending that cities reduce parking minimums does not preclude the construction of new parking spaces associated with commercial and multifamily developments. Often, developers and lenders are aware of how car-dependent a specific community or neighborhood is. Reducing parking minimums allows developers to right-size parking to a specific project.

The Financial Analysis section below describes the impact parking has on project size and feasibility for multifamily, mixed-use, office, and retail development. These impacts directly affect the livability and fiscal health of communities and run counter to regional goals.

## Parking and Development Context

### National Development Environment

Figure 2 below shows how real estate developers and other members of the Urban Land Institute (ULI) evaluate the desirability of development for various property types nationwide. The ULI is the leading national professional association for developers of infill and mixed-use projects. Figure 2 shows that developers are shifting away from building hospitality, office, and retail properties in favor of industrial, single family, and multifamily housing.

Even prior to the pandemic, the demand for industrial space was growing due to the need for warehouses closer to urban centers to solve the "last mile" problem of delivery-based retail. In addition, the persistent shortage of housing in cities of all sizes has led to low vacancy rates and bolstered developer interest in the housing sector. While retail has been on the decline for several years due to changing consumer preferences, interest in hotels and office properties dropped off significantly because of the COVID-19 pandemic. While the hospitality sector appears to be bouncing back

somewhat, developers nationwide are still wary of building new projects. There is continued uncertainty in the office market as workers seek to continue taking advantage of work from home policies. Organizations are starting to reassess how much space they need to accommodate a remote or hybrid workforce. Developer interest in building new office space increased slightly in 2022, but there is still significantly less interest in building new office space than there is for industrial, single-family, and multifamily housing.

According to a recent article in the *New York Times,* suburban office parks like Thanksgiving Point in Lehi have a higher vacancy rate than those in urban downtown areas. As more workers shift to hybrid or work from home models, suburban office parks are struggling to compete both with offices in amenity-rich urban areas and with the convenience of working from home. Landscape architect Louise Mozingo points out that younger workers prefer walkable environments with a variety of places to eat lunch and shop nearby. Increasingly, cities are trying to develop innovative ways to reuse the acres of parking spaces and underutilized buildings that define suburban office parks and malls.

**Figure 2. Developer Interest by Property Type, 2018-22**



*Source: ULI Emerging Trends 2022.*

## WFRC Study Area

Within the WFRC study area, retail uses have by far the highest parking ratio at 6.5 spaces per 1,000 square feet of rentable building area (RBA). Office and specialty uses have more than three spaces per 1,000 square feet of RBA. Multifamily housing has a parking ratio of 1.1 to 1,000 square feet RBA or 1.2 per unit. Even within a half mile of light rail, apartment buildings have nearly one space per unit.

**Figure 3. Parking Spaces per 1,000 sf RBA in WFRC Study Area**



| Category | Value |
|---|---|
| Hospitality | 2.4 |
| Retail | 6.5 |
| Specialty | 3.1 |
| Industrial/Flex | 1.7 |
| Multi-Family | 1.1 |
| Office | 3.5 |
| Health Care | 1.7 |
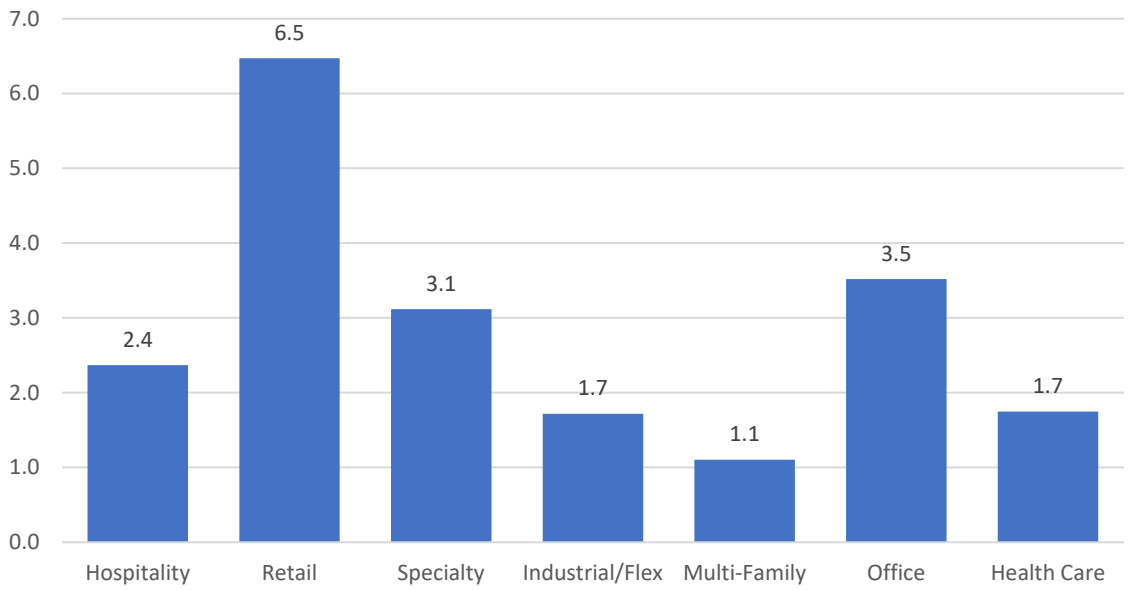
*Source: CoStar.*

**Figure 4. Average Parking Spaces per Multifamily Unit in WFRC Study Area**

| | Average Parking Spaces per MF Unit |
|---|---|
| Light Rail | |
|   Not Within a Half Mile | 1.35 |
|   Within a Half Mile | 0.99 |
| FrontRunner | |
|   Not Within a Half Mile | 1.22 |
|   Within a Half Mile | 1.02 |
|    *Average for All Units* | *1.20* |

**Figure 5. Map of Parking Spaces per Multifamily Unit in WFRC and MAG Study Area**
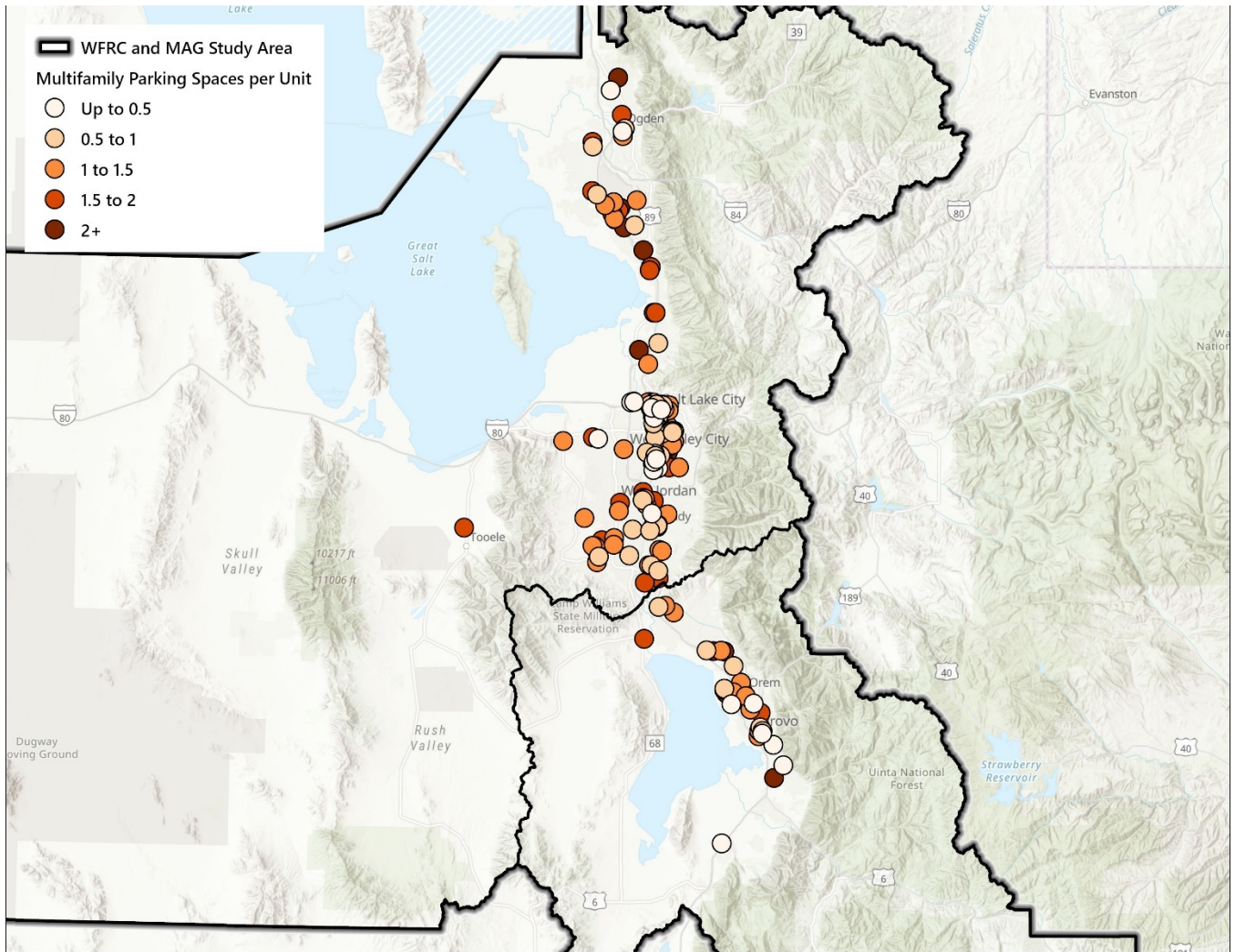
**Figure 6. Map of Multifamily Parking Spaces per Unit in the Northern Subarea**
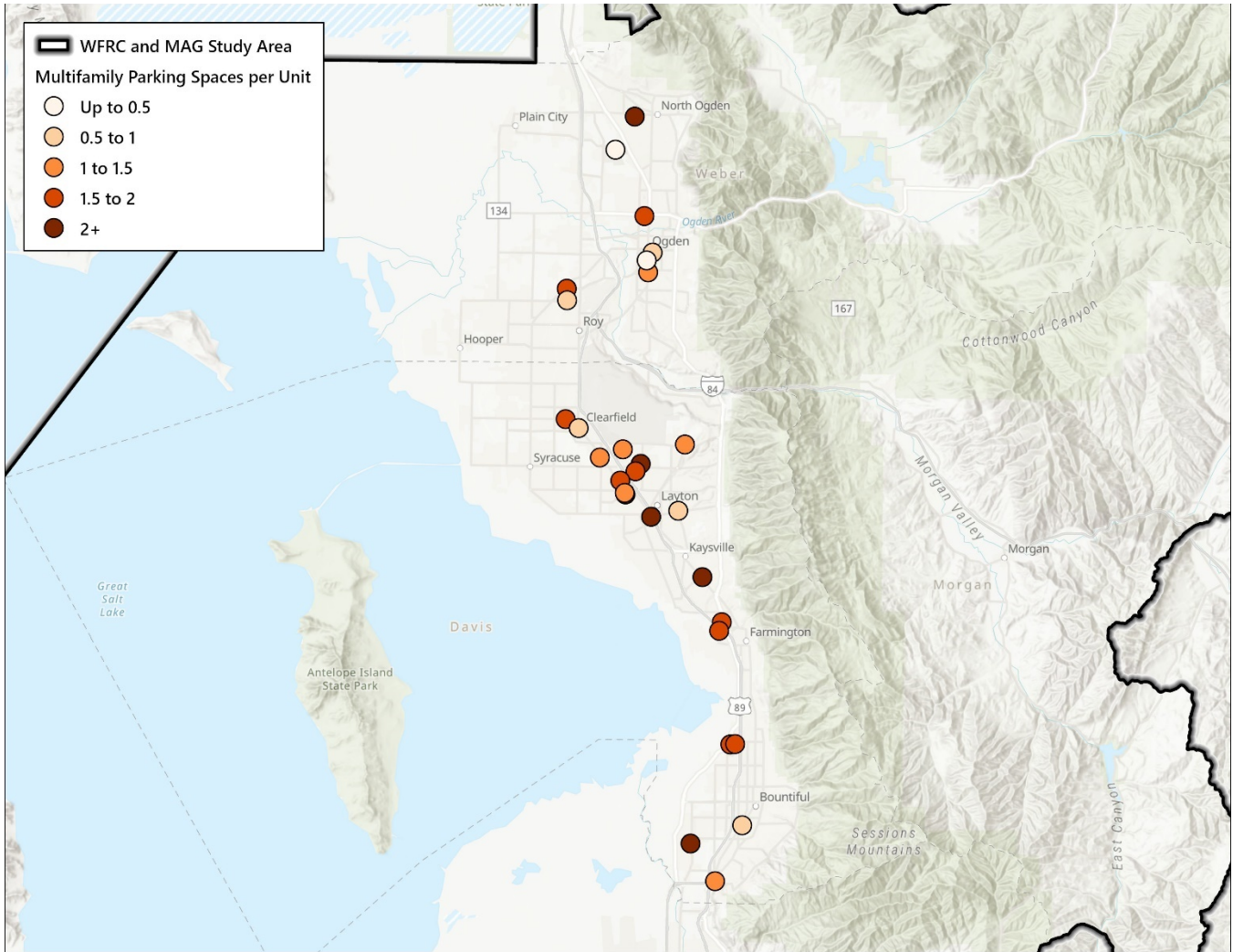
**Figure 7. Map of Multifamily Parking Spaces per Unit in the Central Subarea**
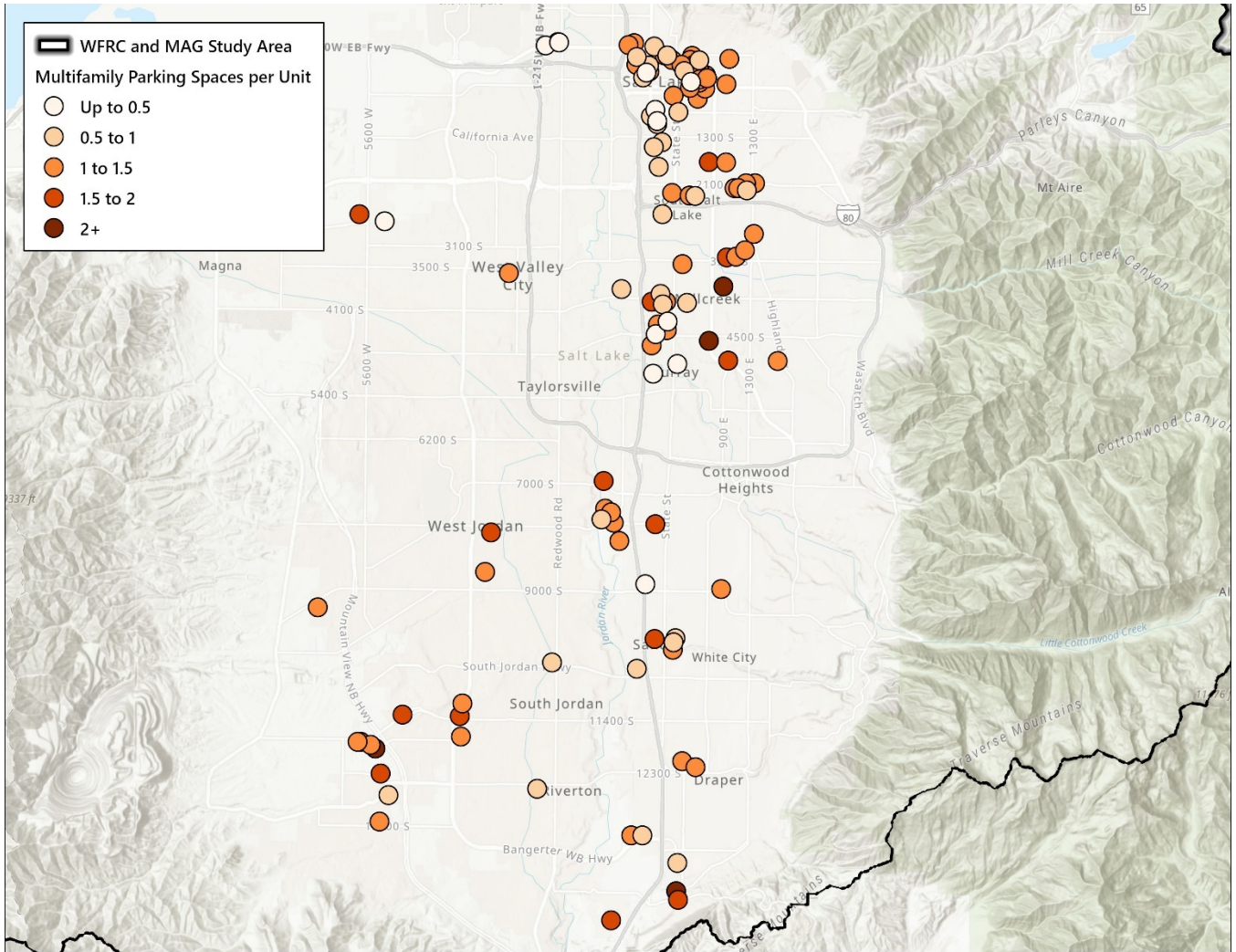
**Figure 8. Map of Multifamily Parking Spaces per Unit in the South Subarea**
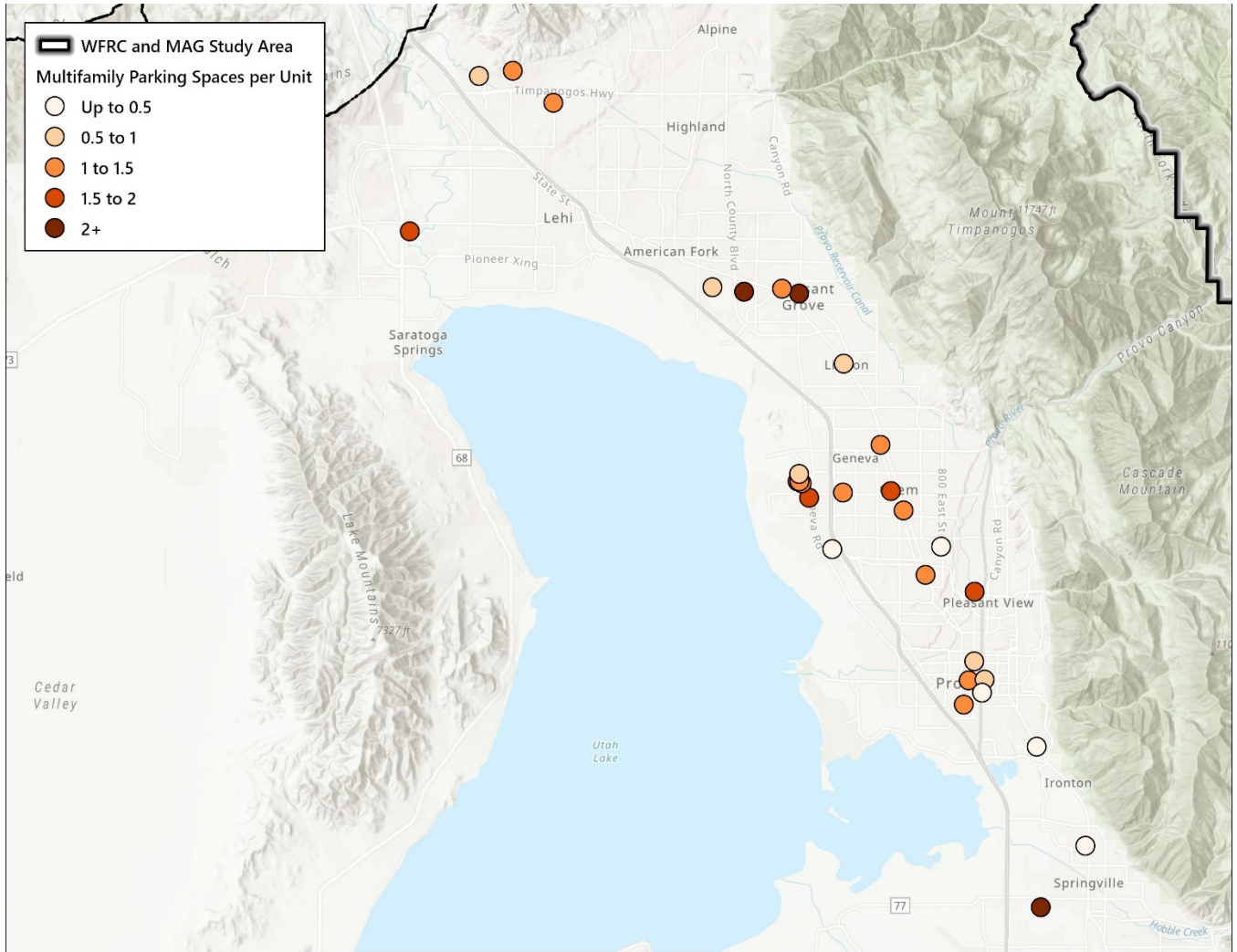
## Sample Areas

LCG analyzed the impacts of large quantities of surface parking in four areas – two in the WFRC region and two in the MAG region. Three of these areas are adjacent to light rail or commuter rail. In addition, LCG analyzed two areas outside of the Salt Lake Region that serve as comparisons to the WFRC and MAG sample areas: Belmar in Lakewood, Colorado and Orenco Station in Hillsboro, Oregon. While Orenco Station is adjacent to light rail, Belmar is not a transit-oriented development. These case studies provide examples for how overparked areas can be improved to meet WFRC's regional goals.

## Central Pointe TRAX Station Area

The Central Pointe TRAX Station Area is a commercial district with a mix of big box stores and smaller local retail establishments. Area west of the TRAX station includes an RC Willey, a Best Buy, and a handful of furniture stores. The area to the east of the TRAX station is home to single story industrial buildings and intermittent sidewalk infrastructure. There are more big box stores to the north of the station including PetSmart, Sam's Club, and Home Depot. Approximately 48% of land in the Central Pointe TRAX Station Area is dedicated to parking.

**Figure 9. Aerial Map of Central Pointe Study Area**
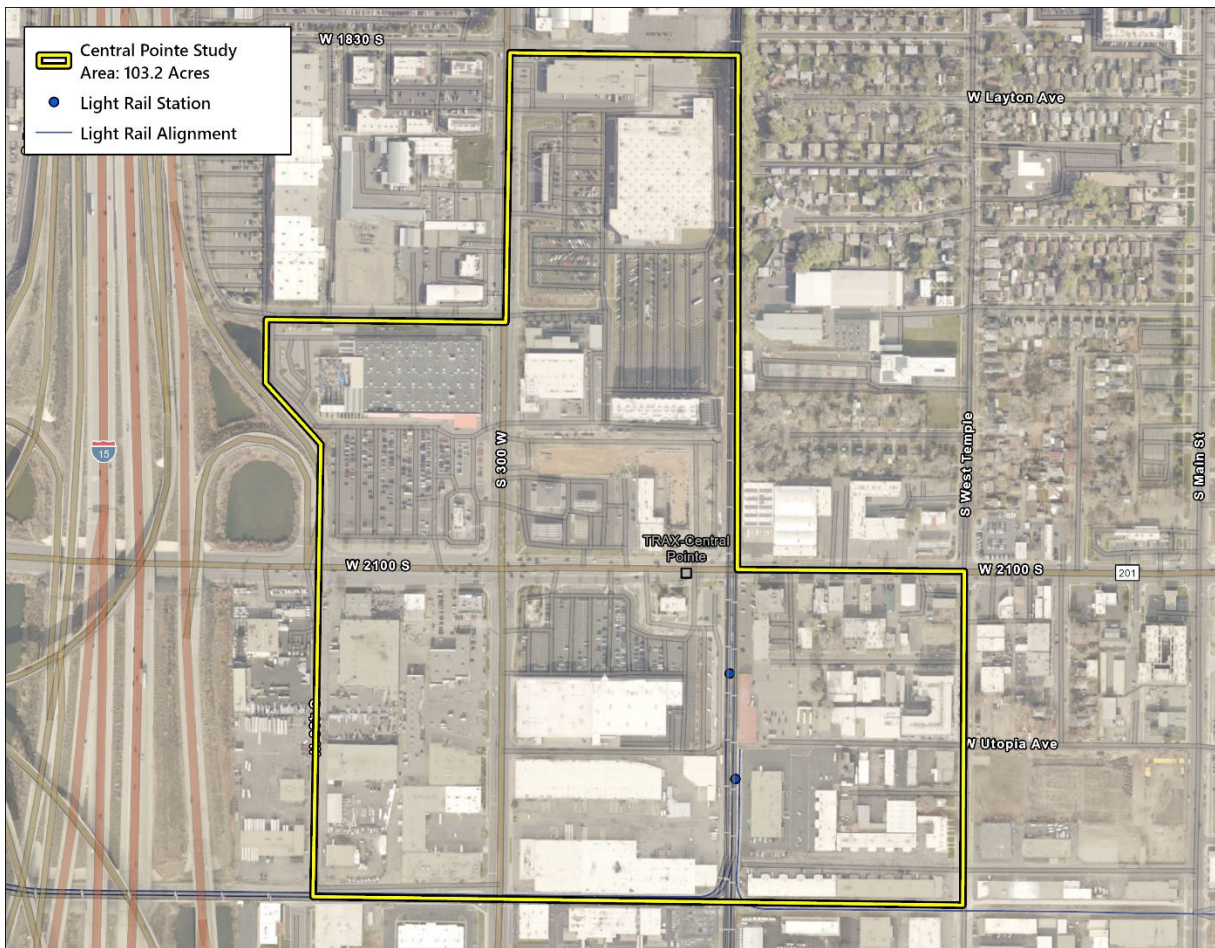
**Figure 10. Central Pointe Study Area Parking Coverage**
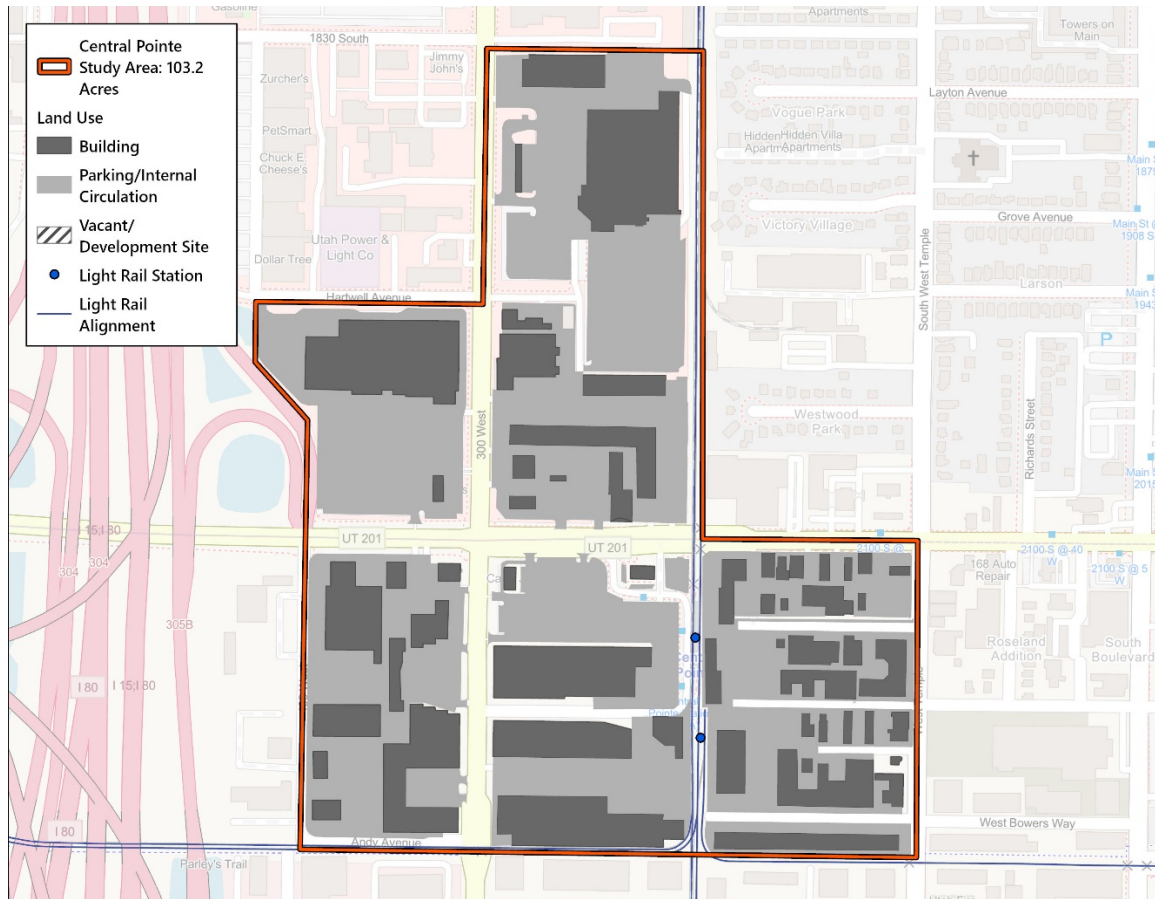


**Figure 11. Land Uses as Share of Total Acreage, Central Pointe Study Area**

|  | Acres | Approximate Parking Spaces | Percent of Total Area |
|---|---|---|---|
| Central Pointe |  |  |  |
| Building Footprint | 28.9 |  | 28% |
| Other | 11.8 |  | 11% |
| Roadway | 12.8 |  | 12% |
| Parking | 49.8 | 6,202 | 48% |
| **Total** | **103.3** |  |  |

*Source: LCG*

*"Other" includes areas such as curbs, sidewalks, plaza space, natural areas, buffers, hillsides, and other places not dedicated to vehicular circulation.*

Central Pointe does not have a station area plan, but the city has taken steps to enable transit-oriented development. According to UTA's TOD Web Tool, Central Pointe is zoned for mixed-use development, planned for moderate-income housing, and adopted some TOD-supportive parking requirements. However, there is room for improvement in the city's plan for density and its use of TIF districts.

**Figure 12. UTA TOD Web Tool Score for Central Pointe**
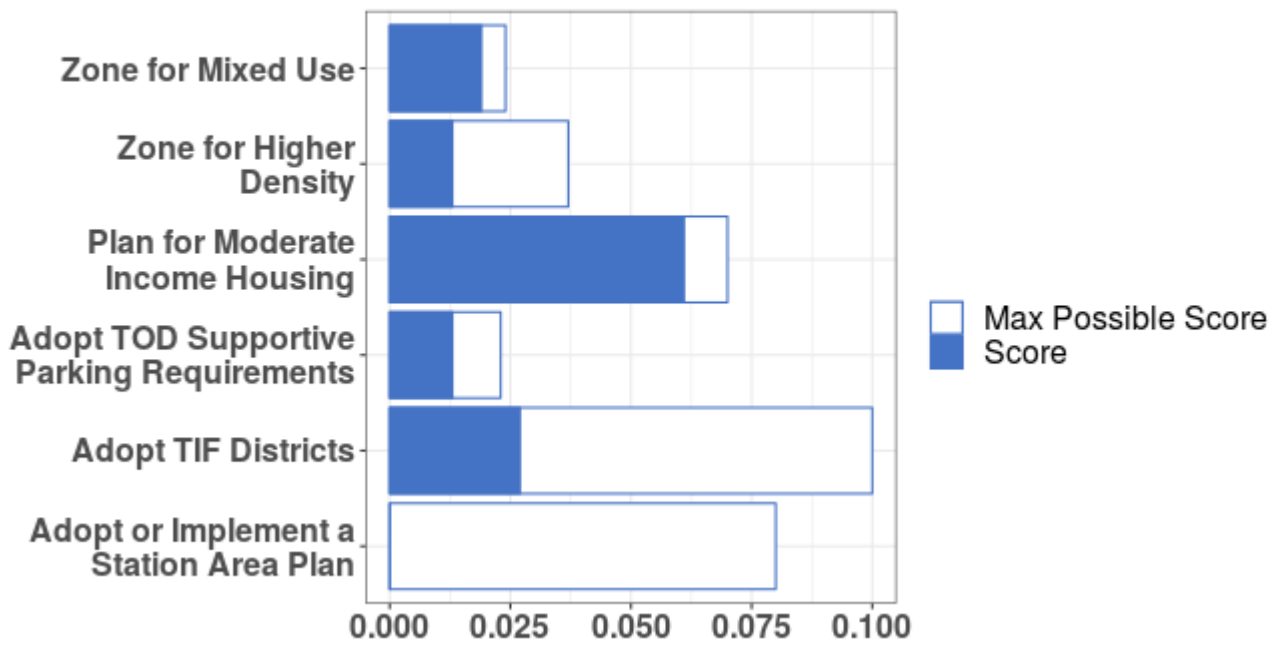


Source: UTA

# Farmington Station, Farmington

The land adjacent to the Farmington-FrontRunner Station includes the Station Park Mall and surrounding businesses. These areas include big box stores like Best Buy, HomeGoods, Famous Footwear, Petco, and Ross Dress for Less as well as the University of Utah Farmington Health Center and Harmons Grocery. The site dedicates a full 52 acres of space to parking, approximately 48% of the total site area. While there is a park and ride adjacent to the FrontRunner, the station's position between the sea of parking lots and Highway 15 makes it largely inaccessible to pedestrians and bicyclists.

**Figure 13. Aerial Map of Farmington Study Area**

**Figure 14. Farmington Study Area Parking Coverage**
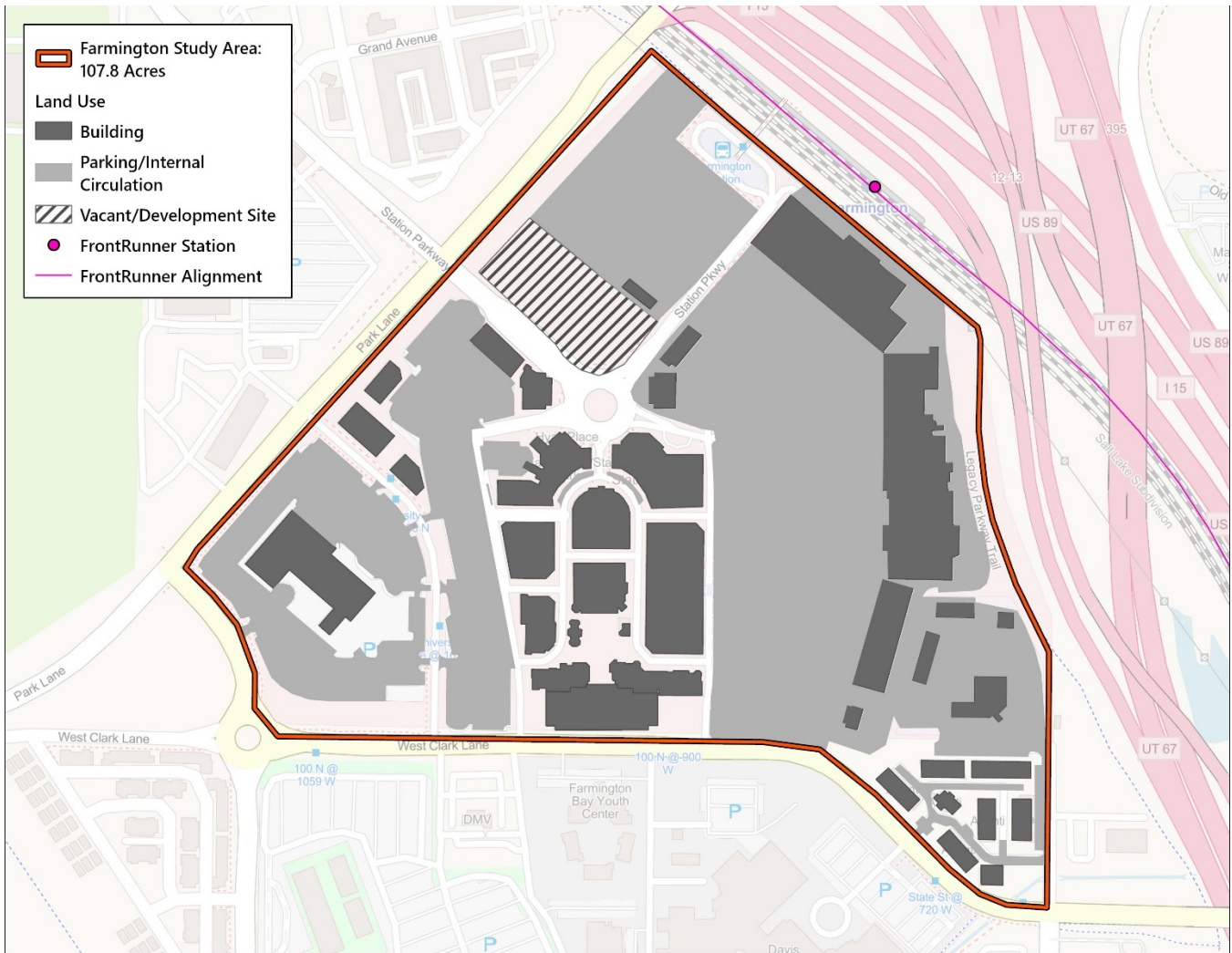


**Figure 15. Land Uses as Percentage of Total Acreage, Farmington Study Area**

| | Acres | Approximate Parking Spaces | Percent of Total Area |
|---|---|---|---|
| Farmington | | | |
| Building Footprint | 22.5 | | 43% |
| Other | 22.7 | | 21% |
| Roadway | 6.8 | | 13% |
| Development Site | 3.5 | | 7% |
| Parking | 52.1 | 6,490 | 48% |
| **Total** | **107.7** | | |

The 2016 North Station Small Area Master Plan involved the redevelopment of land north of the Farmington Station shopping district. Like Lehi, Farmington expects to concentrate mixed-use development on existing farmland, rather than redeveloping the surface parking in the mall area. While this will create new communities without any displacement

of residents or businesses, it will require substantial new infrastructure to complete. In addition, it will not improve the walkability of the Farmington Station mall area.

**Figure 16. North Station Plan Area, Farmington, Utah**



*Source: City of Farmington*

The land in the North Station Plan Area is currently held by 16 different owners, which will make redeveloping this area more complicated. The City will also need to build new roads and trails throughout the site.

# Lehi – Thanksgiving Point (MAG)

The Thanksgiving Point study area is adjacent to the Lehi FrontRunner Station. The area is mainly an office park along with hospitality and some small retail space. The area is home to MX Technologies and the Utah Valley University Thanksgiving Point Campus as well as a Courtyard by Marriott, a Home2 Suites by Hilton, and a SpringHill Suites by Marriott. There are also financial services providers and tech businesses. 72 acres of land at Thanksgiving Point is dedicated to parking, 49% of the site's total land area. Again, while there is a large park and ride area, there is no direct pedestrian access to the FrontRunner station.

**Figure 17. Aerial Map of Lehi Study Area**
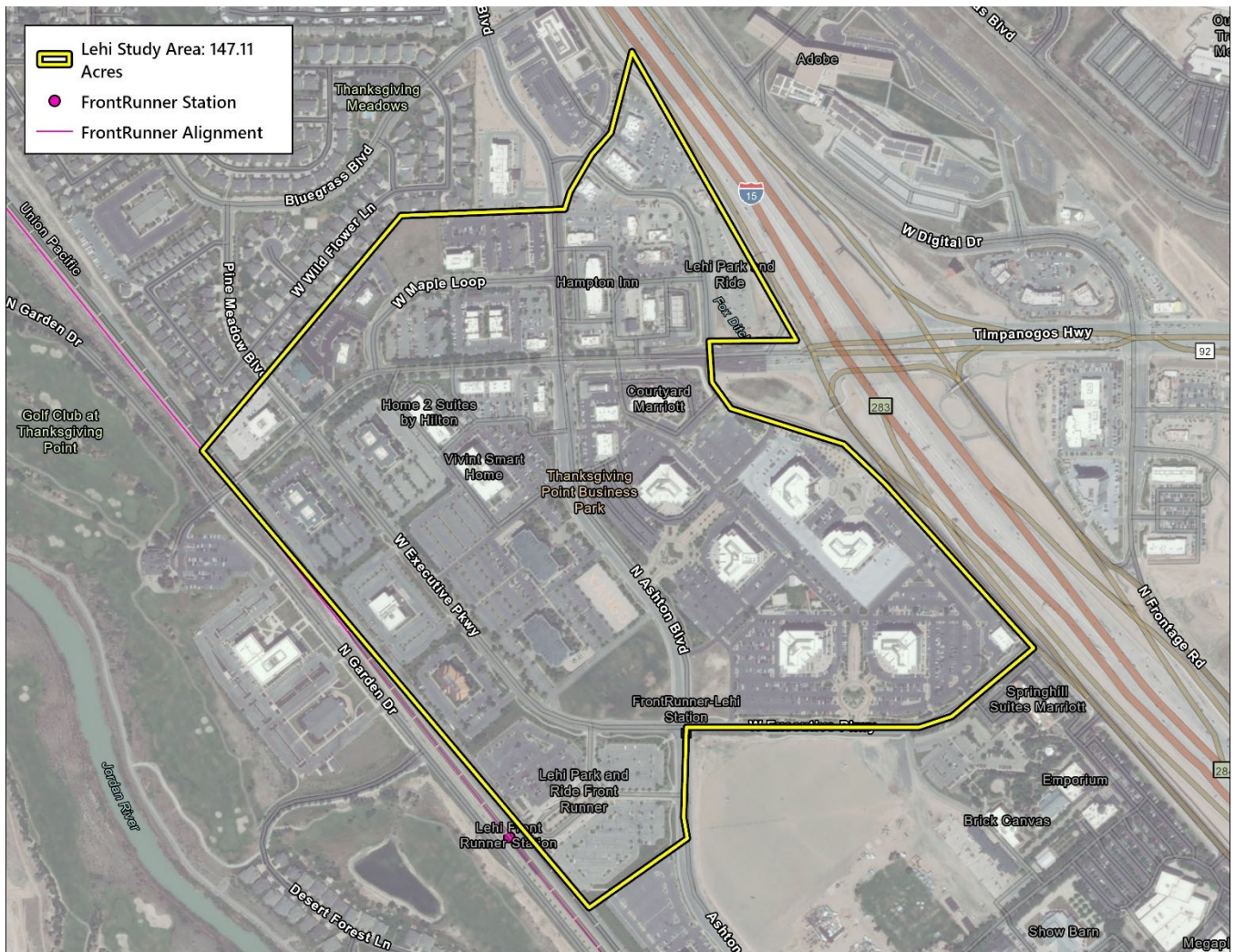
**Figure 18. Lehi Study Area Parking Coverage**
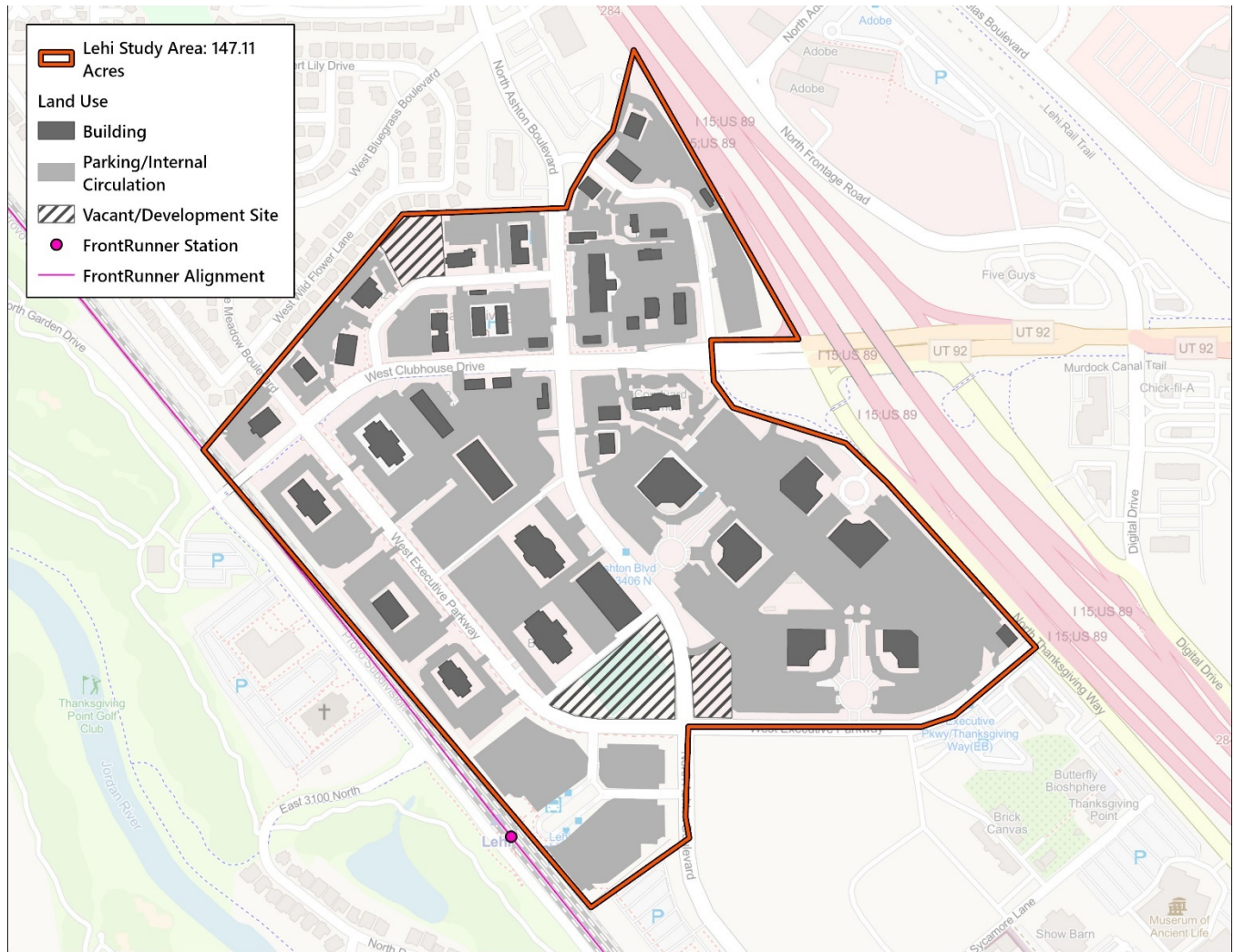


**Figure 19. Land Uses as Percentage of Total Acreage, Lehi Study Area**

|  | Acres | Approximate Parking Spaces | Percent of Total Area |
|---|---|---|---|
| Lehi |  |  |  |
| Building Footprint | 13.4 |  | 9% |
| Other | 33.7 |  | 23% |
| Roadway | 21.1 |  | 14% |
| Development Site | 6.3 |  | 4% |
| Parking | 72.3 | 8,996 | 49% |
| **Total** | **146.9** |  |  |

The Lehi City Council approved a plan to bring 2,000 new transit-oriented housing units to the Thanksgiving Point subarea. These will be located south of the intersection of Ashton Boulevard and Executive Parkway (outside of the boundaries shown in Figure 17). The 77-acre site is currently a mix of farmland and UTA-owned land, including a park

and ride. The areas that are currently farmland will need additional infrastructure before the units are built out. As a result, the development is expected to be phased in coordination with infrastructure improvements. The plan for 2,000 units was approved after the original plan for 5,000 units was voted down. The brown areas in Figure 20 will be mixed-use transit-oriented development, while the green areas are open space. The yellow is residential and mixed-use commercial, and the purple is heavy commercial.

While transit-oriented housing development in this area will increase the housing supply and improve transit access, the rest of the site remains heavily parked. The large amount of surface parking at Thanksgiving Point decreases walkability. Future plans to add density in the area should focus on infill where there is already infrastructure, and where walkability will be improved through replacing surface parking with mixed-use development.

**Figure 20. Land Use Plan for Thanksgiving Point TOD Project**
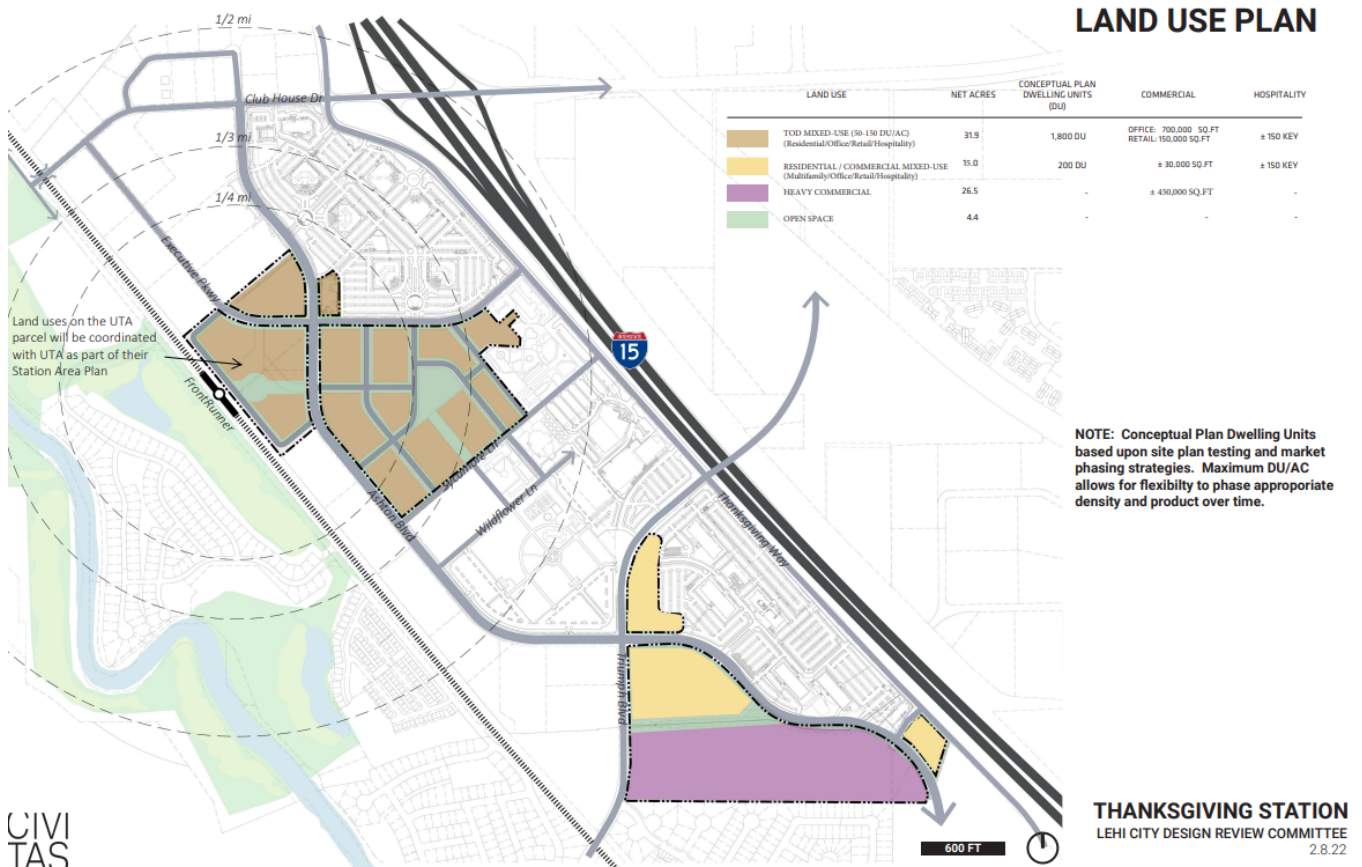


| LAND USE | | NET ACRES | CONCEPTUAL PLAN DWELLING UNITS (DU) | COMMERCIAL | HOSPITALITY |
|---|---|---|---|---|---|
| | TOD MIXED-USE (50-150 DU/AC) (Residential/Office/Retail/Hospitality) | 31.9 | 1,800 DU | OFFICE: 700,000 SQ.FT RETAIL: 150,000 SQ.FT | ± 150 KEY |
| | RESIDENTIAL / COMMERCIAL MIXED-USE (Multifamily/Office/Retail/Hospitality) | 15.0 | 200 DU | ± 30,000 SQ.FT | ± 150 KEY |
| | HEAVY COMMERCIAL | 26.5 | - | ± 450,000 SQ.FT | - |
| | OPEN SPACE | 4.4 | - | - | - |

**Figure 21. Proposed Phasing of Lehi Transit-Oriented Development**
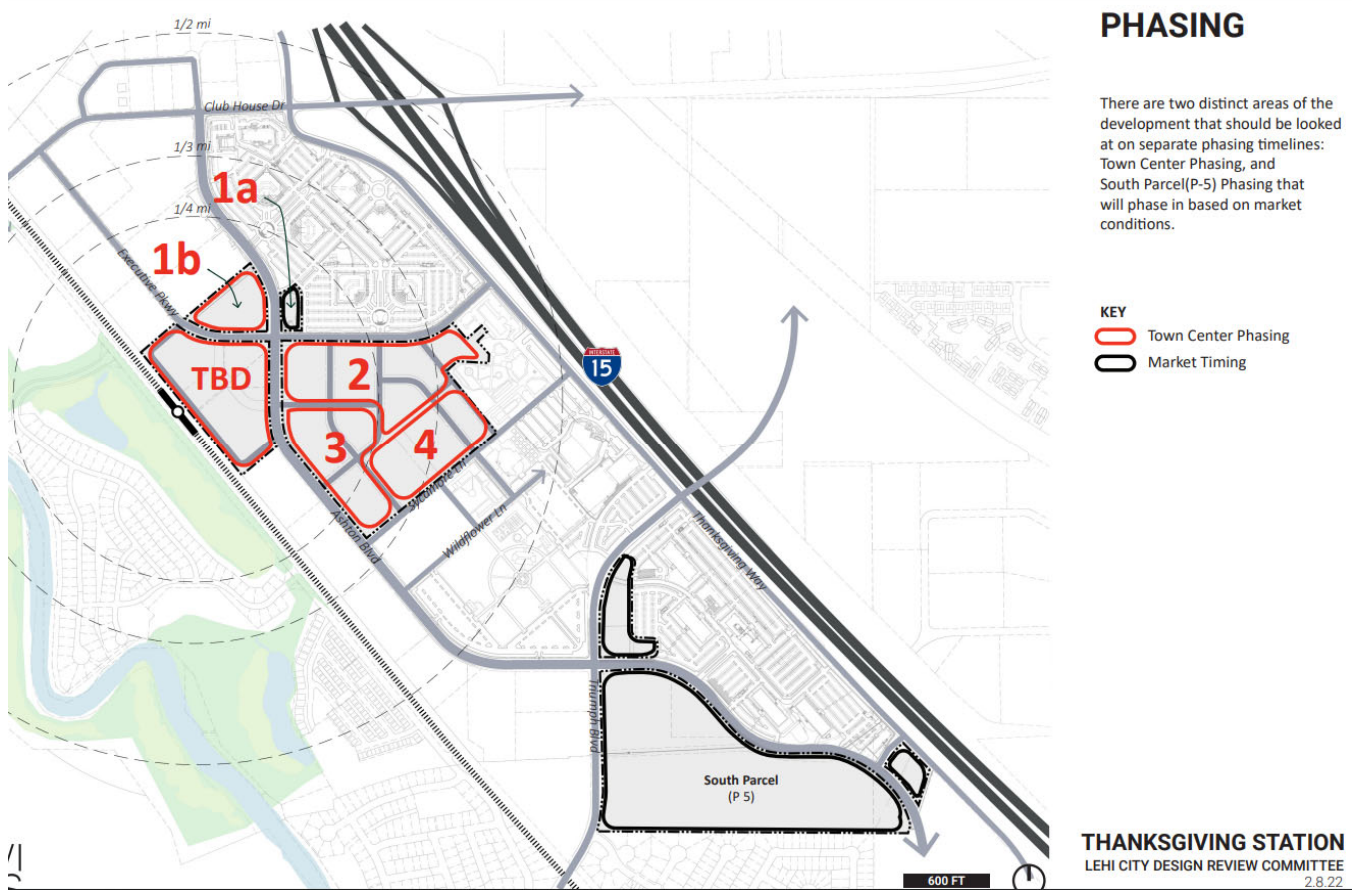
## Provo Town Center (MAG)

The Provo Town Center study area consists of a mall surrounded by parking next to another large shopping center. The Provo Towne Center Mall has a JC Penny and a Cinemark movie theater, though the Dillard's in the map below recently closed. South of the mall there is a Home Depot. The East Bay Shopping Center east of the Town Centre Mall includes Sam's Club, Ross Dress for Less, Sportsman's Warehouse, and the Provo Post Office. Nearly 85 acres of the site is dedicated solely to parking, 57% of the total site area. While the site is not directly transit-adjacent, there is a FrontRunner station 0.7 miles north of the Town Center Mall.

**Figure 22. Aerial Map of Provo Town Center Study Area**
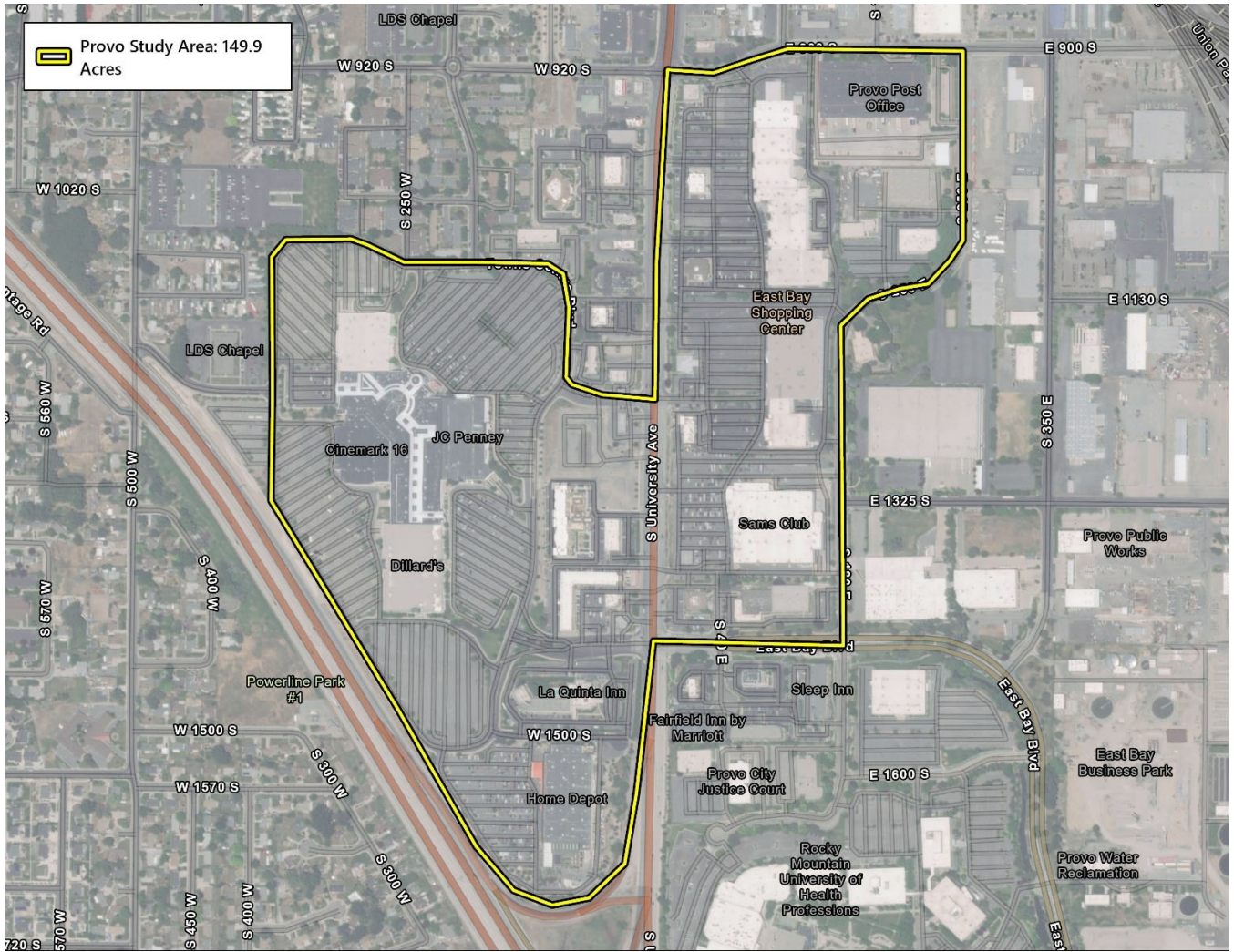
**Figure 23. Provo Town Center Study Area Parking Coverage**
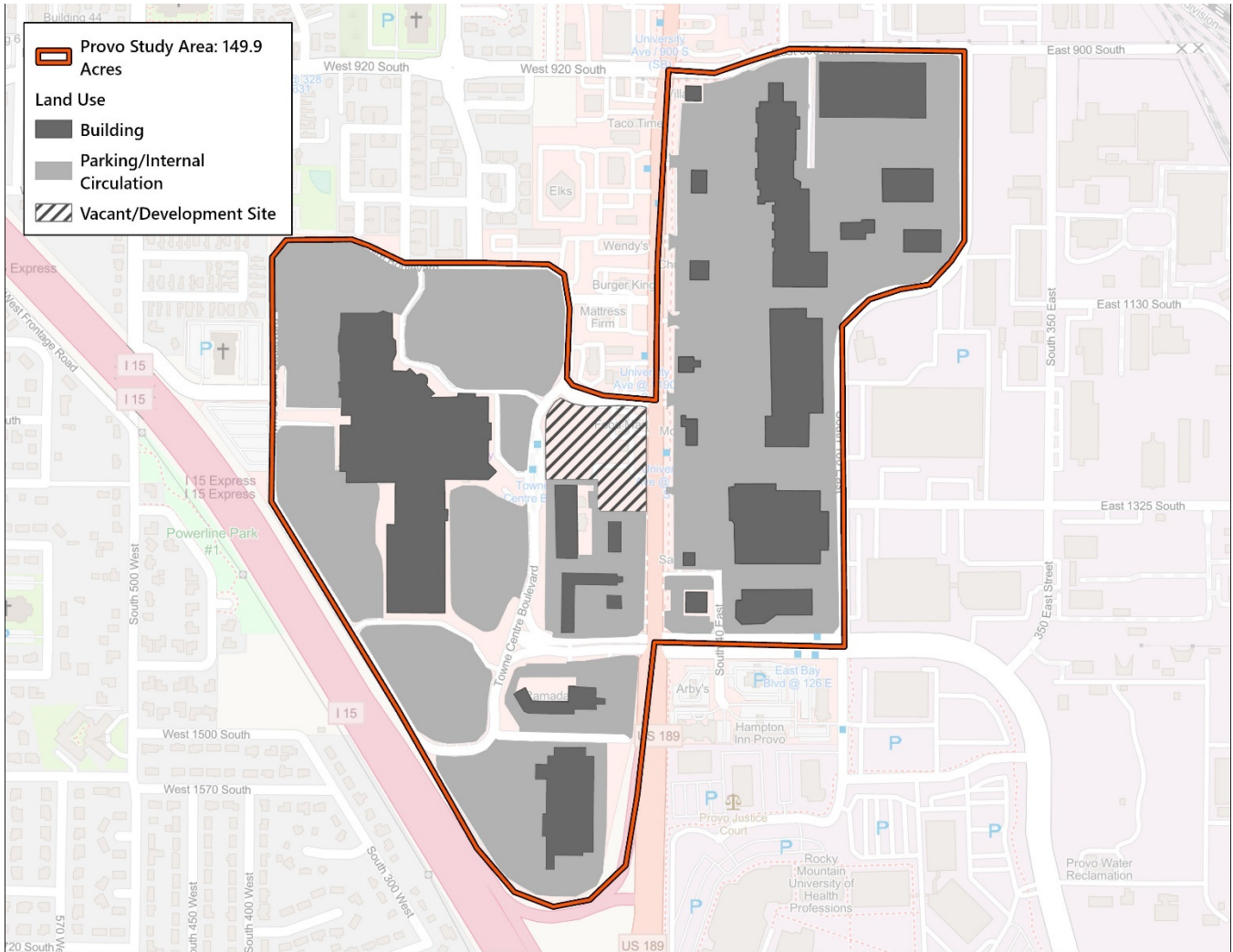
**Figure 24. Land Uses as Percentage of Total Acreage, Provo Town Center Study Area**

| | Acres | Approximate Parking Spaces | Percent of Total Area |
|---|---|---|---|
| Provo | | | |
| Building Footprint | 33.4 | | 39% |
| Other | 10.8 | | 7% |
| Roadway | 16.8 | | 20% |
| Development Site | 4.3 | | 5% |
| Parking | 84.9 | 10,572 | 57% |
| **Total** | **150.2** | | |

The 2018 Provo Station Area Plan calls for the redevelopment of UTA surface parking stalls, and warns against the inclusion of excessive surface parking on vacant or underutilized lots slated for redevelopment. It also suggests using parking lots as space for food trucks as they are redeveloped. It also calls for including street parking in parking ratio calculations to avoid overparking the area. However, this plan prioritizes office uses over residential or retail. Just 151 housing units are included in the plan, across a total of 14 buildings, while 385,760 square feet of office space will be spread across 6 buildings. The impacts of the COVID-19 pandemic on suburban office vacancy rates is likely to impact the mix of uses on this site.

**Figure 25. Provo Station Area Plan, 2018**



Station Area Illustrative Concept Plan Site Diagram: Potential 20 Year Build Out

**RESIDENTIAL**
total # of buildings: 12
estimated total square feet: 303,400
estimated # of dwelling units: 139

**OFFICE**
total # of buildings: 6
estimated total square feet: 385,760

**RETAIL**
total # of buildings: 8
estimated total square feet: 47,000

**MIXED OFFICE/RETAIL**
total # of buildings: 3 (plus parking structure frontage)
estimated total square feet: 114,800

**MIXED RESIDENTIAL/RETAIL**
total # of buildings: 1
estimated total square feet: 25,200
estimated # of dwelling units: 6

**LIVE/WORK**
total # of buildings: 1
estimated total square feet: 25,200
estimated # of dwelling units: 6

NORTH

*Source: UTA*

## Belmar – Lakewood, Colorado

Provo Town Center and Lehi both have the opportunity to transform heavily parked former commercial spaces into thriving mixed use communities. Lakewood, Colorado provides a potential example for these communities to follow with the redevelopment of the Villa Italia regional mall into what is now Belmar. Villa Italia was a 104-acre site with 1.2 million square feet of commercial space built in 1966.

**Figure 26. Villa Italia prior to Redevelopment**



**Figure 27. Belmar after Redevelopment**



**Figure 28. Belmar Master Plan.**

**Figure 29. Square footage of uses and value comparison of Villa Italia and Belmar.**
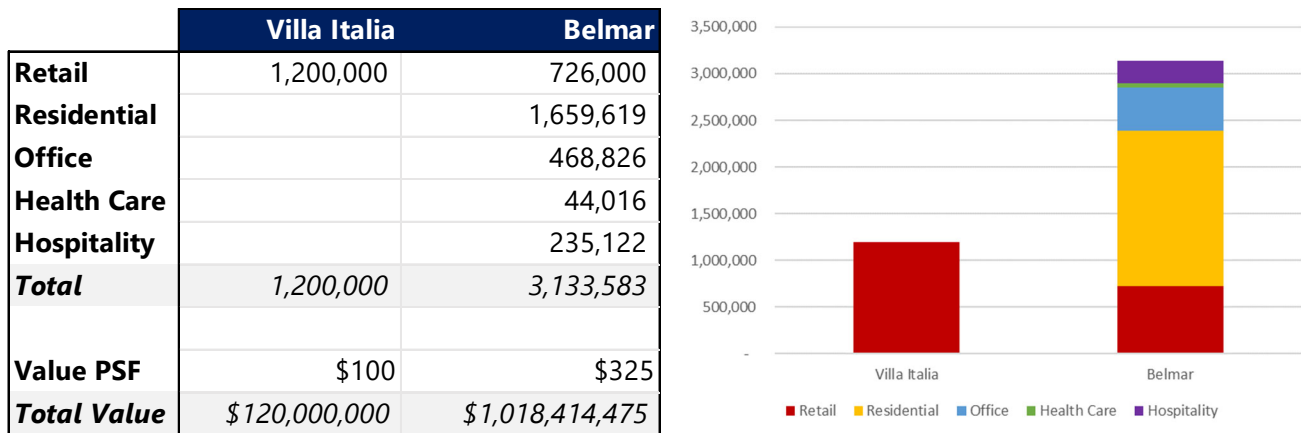
| | Villa Italia | Belmar |
|---|---|---|
| **Retail** | 1,200,000 | 726,000 |
| **Residential** | | 1,659,619 |
| **Office** | | 468,826 |
| **Health Care** | | 44,016 |
| **Hospitality** | | 235,122 |
| *Total* | *1,200,000* | *3,133,583* |
| | | |
| **Value PSF** | $100 | $325 |
| *Total Value* | *$120,000,000* | *$1,018,414,475* |



*Source: Leland Consulting Group. Note: Belmar data is as of 2018.*

The vast, sprawling parking lots that had surrounded the Villa Italia shopping center were converted into mixed use buildings with retail, housing, office, health care, and hospitality. The redevelopment was a public private partnership between the City of Lakewood and the developer, Continuum Partners. The used Public Improvement Fee and Tax Increment Financing to direct $95 million to site infrastructure and preparation and in exchange got a new thriving downtown area. As a result of the redevelopment, the value of the site increased from $120 million to $1.02 billion. While it is still a shopping district, it is significantly more walkable and offers spaces for public gatherings. The site still includes a significant parking element, with 2,500 surface and 2,500 structured spaces, but parking the parking ratio is significantly lower than it had been previously. 5,000 spaces serve 1,048 residential units and nearly 1.5 million square feet of retail, office, health care, and hospitality. This is nearly the same square footage as the building footprints at Provo Town Center, where there are an estimated 10,572 parking spaces.

By significantly reducing the amount of surface parking on site, Belmar was able to become a more attractive and walkable area that people want to visit. Unlike the Farmington and Lehi sample areas, Belmar is not adjacent to public transportation, yet it still attracts tenants and visitors without maximizing parking area.

## Orenco Station – Hillsboro, OR

Orenco Station is a development in Hillsboro, Oregon with 110 acres of mixed-use development on approximately 135 acres of land. Orenco Station was first planned in the 1990s and completed in 2016. Hillsboro is a suburb of Portland in neighboring Washington County, with proximity to major employers like Nike, Columbia Sportswear, and Intel. The Orenco Station development is located adjacent to a MAX station at NW 231st Avenue and offers a wide variety of housing types as well as retail, office, and hospitality. Housing at Orenco Station includes detached single family, attached single family, condos, and apartments on 171 acres of land. While Orenco Station does have surface, street, and underground parking, parking is shared between commuters, visitors, and residents to reduce the total number of spaces and maintain walkability throughout the site. In the transit-oriented portion of the site south of Cornell Road, there are 2,979 parking spaces serving 56,730 square feet of commercial space and 1,944 housing units. Parking arrangements in the Platform District, which is directly adjacent to the MAX station, are described in further detail below.

**Figure 30. Land Use Map of Orenco Station in Hillsboro**
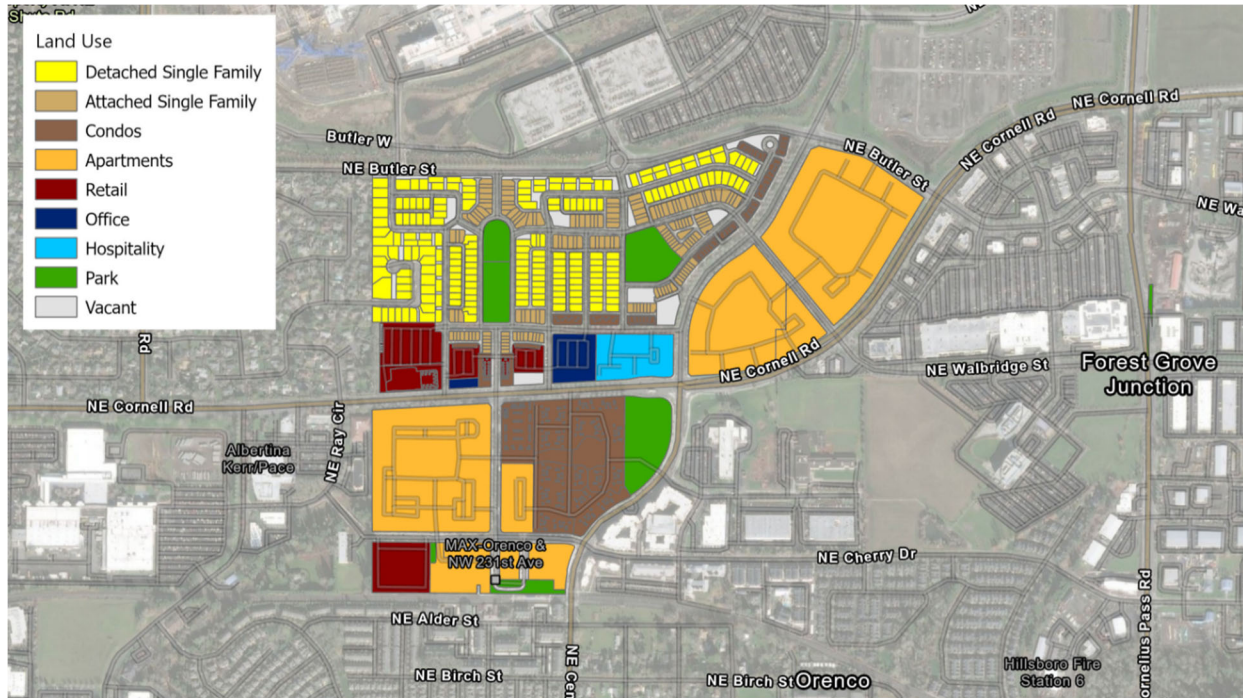


*Source: LCG*

**Figure 31. Low to Medium Density Housing and Surface Parking at Orenco Station.**

# Comparison of Sample Areas

When compared to the other sample areas listed above, Belmar has a significantly more diverse mix of uses. In addition, while the site is only 104 acres, it has more commercial square footage than any of the study areas. Belmar has roughly 30,000 square feet of rentable building area per acre – more than double the density of Farmington, Central Pointe, and Lehi. With less space dedicated to parking, Belmar supports a wider variety of uses that attract visitors year-round.

**Figure 32. Rentable Building Area of Belmar vs. Sample Areas**
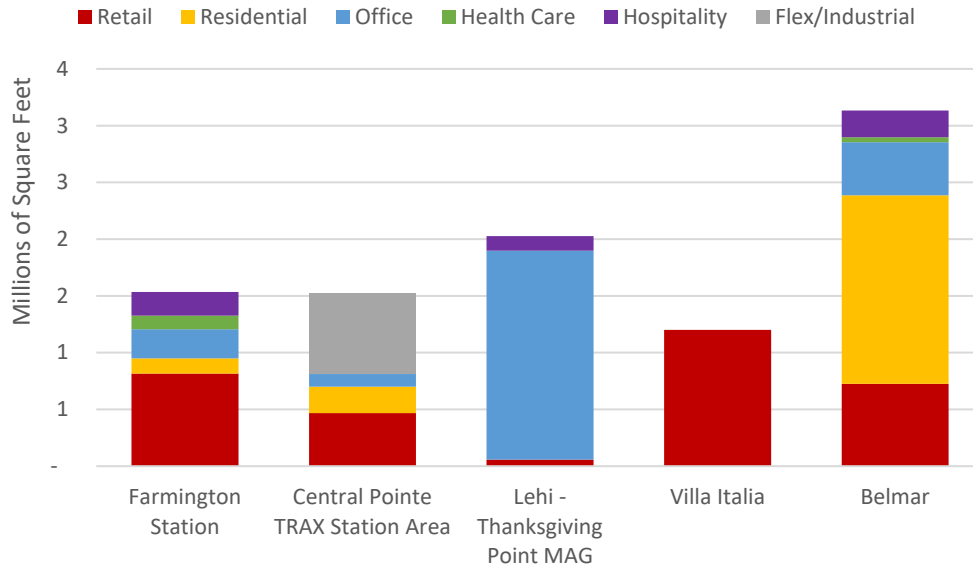


*Source: CoStar, LCG.*

**Figure 33. Rentable Building Area per Gross Acre of Belmar vs. Sample Areas (SF)**
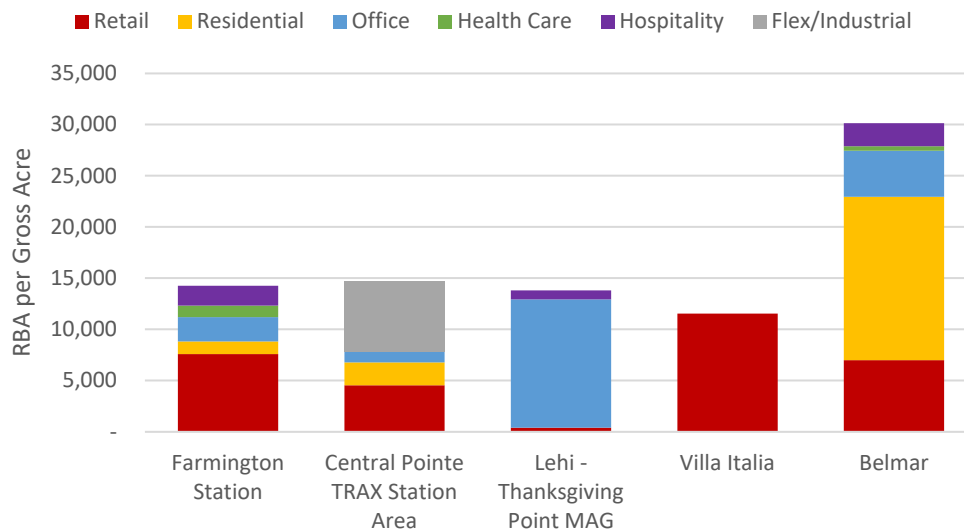


*Source: CoStar, LCG, City of Hillsboro.*

# Financial Analysis

In this section, LCG analyzes the impacts of parking requirements on development feasibility for housing, mixed-use, office, and retail projects. High parking requirements not only preclude some projects from being built, they can also have a direct impact on the size and value of projects that do get built. As discussed in the WFRC Regional Vision section above, high parking requirements limit the ability of communities to meet regional goals. Table 1 below shows that there are also shortcomings and benefits for different types of parking. The approach to parking that best supports a range of WFRC goals is probably to reduce the amount of parking, while accommodating parking in a mix of surface and structured spaces.

**Table 1. Benefits and Shortcomings of Surface vs. Structured Parking**

X = Parking Approach does not support goal or vision

✔ = Parking Approach supports goal or vision

| WFRC Goals and Benefits | Surface Parking | Structured Parking | Less Parking, Whether Surface or Structured |
|---|---|---|---|
| Livable and Healthy Communities<br><br>*"Communities can be designed to encourage people to walk, cycle, play in the park, use public transportation, and interact with community members all of which contribute to lifelong health and wellbeing."* | X | ✔ | ✔ |
| Housing Choices and Affordable Living Expenses<br><br>*"Coordinating mixed-use development with existing and planned transportation infrastructure will give residents more options to take transit, bike, or walk. This reduces the total household costs for housing and transportation."* | ✔ | X | ✔ |
| Safe, User-Friendly Streets | X | ✔ | ✔ |
| Financial Feasibility of Development | ✔ | X | ✔ |

*Source: LCG.*

Development feasibility is the ability of a development to be completed for a price that is likely to provide the developer with a specific target return (typically around 6%) once it is leased up and sold. Significant factors that impact feasibility include land costs, rent prices, regulatory requirements (i.e., inclusionary zoning), construction costs, and parking requirements.

Parking requirements impact feasibility through land utilization and construction costs. For example, while surface parking does not cost a lot to build, it takes up a significant amount of land, reducing what can be built on-site. This can be even more challenging in areas with low height restrictions and floor area ratios (FAR). If there is no room for a project to be built horizontally, it must be built vertically – therefore the combination of height limits and parking requirements will significantly impact the feasibility of a project. While in some cases a smaller development may still be

feasible, it is likely that this smaller structure will be worth less, impacting City property tax revenues. In addition, in the case of retail establishments this may also impact the amount of sales tax revenue generated by the property.

Total project costs can be divided into three categories: land costs, hard costs, and soft costs. Hard costs are the costs of materials and construction, including site work, foundations, shell and core, tenant improvements, and the cost of building on-site parking. Soft costs are costs associated with design, engineering, fees and permits, legal services, marketing, and other non-construction costs. In this financial analysis, LCG assumes that the soft costs specifically associated with parking are 30% of the hard costs. The financial analysis in this memo **does not include land costs** due to the wide variety of factors that can influence the cost of land, including location, existing structures, zoning, and condition.

Structured parking is much more expensive to build than surface parking. If parking is built under a building, a parking structure can add significant cost and time to a project. If it is an above-ground structured parking garage, in addition to the costs of construction it decreases the amount of space available for living, commercial, and/or amenity space. LCG's current (2022) estimate, based on interviews with developers and general contractors—is that an above ground structured parking space costs around $42,000 in hard costs to build. If a developer were to charge tenants $100 per month to rent a space, it would take at least 35 years to recoup the cost, and likely quite a bit longer after operating expenses are factored in. As a result, parking has a significant impact on rents.

If, for example, two spaces per multifamily unit are required in a structured parking lot, a developer's revenue target has to increase by $4,782.48 per unit ($398.54 per month) in order to maintain the desired return. Most of this cost will be distributed to all tenants via higher rents, regardless of whether every household utilizes the parking.

## Housing Construction Typologies

Figure 34 below shows typical housing typologies and the most common parking configurations for each example. Townhomes typically have garages, while Garden-Style apartments are typically surfaced parked. Main Street or Urban Garden apartments can have a mix of surface and structured parking, while Wrap and Mid-Rise or Podium typically utilize structured parking.

**Figure 34. Housing Typologies with Common Parking Configurations**

| Construction Types | Townhomes | Garden Apartments | Main Street / Urban Garden Apts. | Wrap | Mid-Rise / Podium |
|---|---|---|---|---|---|
| Parking Structure | Surface / tuck under Wood frame | Surface Wood frame | Surface / tuck under Wood over concrete | Structure Wood with concrete | Structure Wood over concrete |
| Density (Du/acre) | 14 | 25 | 45 | 60 | 125 |

*Source: LCG.*

Garden-Style housing is typically entirely wood framed, limiting it to three stories. Podium construction is typically three to seven stories of wood construction over a concrete podium. Usually, these buildings are mixed use with retail on the ground floor. Garden-Style housing is most typically found in suburban areas, as in Figure 35 and Figure 36 below. Podium-Style construction can be built in some suburbs – Bellevue, WA and Hillsboro, OR, for example, both feature Podium-Style buildings, especially in transit-adjacent areas – but they are more typically found in cities.

**Figure 35. Springs at Copper Canyon, a Garden-Style Apartment Complex in Tooele, UT**

*Source: CoStar.*

**Figure 36. The Layton Apartments, a Garden-Style Apartment Complex in Layton, UT**

Figure 37 below shows a Podium-Style building in Salt Lake City with ground floor retail space. While Garden-Style buildings are typically built at a density of 25 units per acre, Podium-Style construction usually ranges from 100 to 150 units per acre. This analysis focuses on these two typologies because they are common for new construction, and because of their different parking configurations.

**Figure 37. The Harvest Apartments, a Podium-Style Mixed-Use Building in Salt Lake City**



*Source: CoStar.*

# Garden-Style Multifamily Housing

Typically, garden-style multifamily housing features surface parking rather than structured. Surface parking lots are relatively inexpensive, as much of the work is completed during initial site preparation. However, there is a space premium associated with surface parking. The more parking required on-site, the less room there is for housing units. Figure 38 below shows the percentage of site area that would be dedicated to parking in a 25-unit multifamily development on a 1-acre site.

Parking at a ratio of two spaces per unit occupies over 40% of the land on a 1-acre site. 25 units would need to be built on the remaining portion of the site, less any necessary setbacks. Depending on FAR and height requirements, this may not be possible. Requiring just one space per every two units (a parking ratio of 0.5:1) would only occupy 10% of the site, leaving significantly more room for apartments, site amenities such as landscaping, open spaces, and community gathering areas, and in all likelihood enabling housing to be placed in greater proximity to employment and commercial uses.

**Figure 38. Surface Parking Space Lot Coverage Impacts for 1 Acre Garden-Style Housing Project**
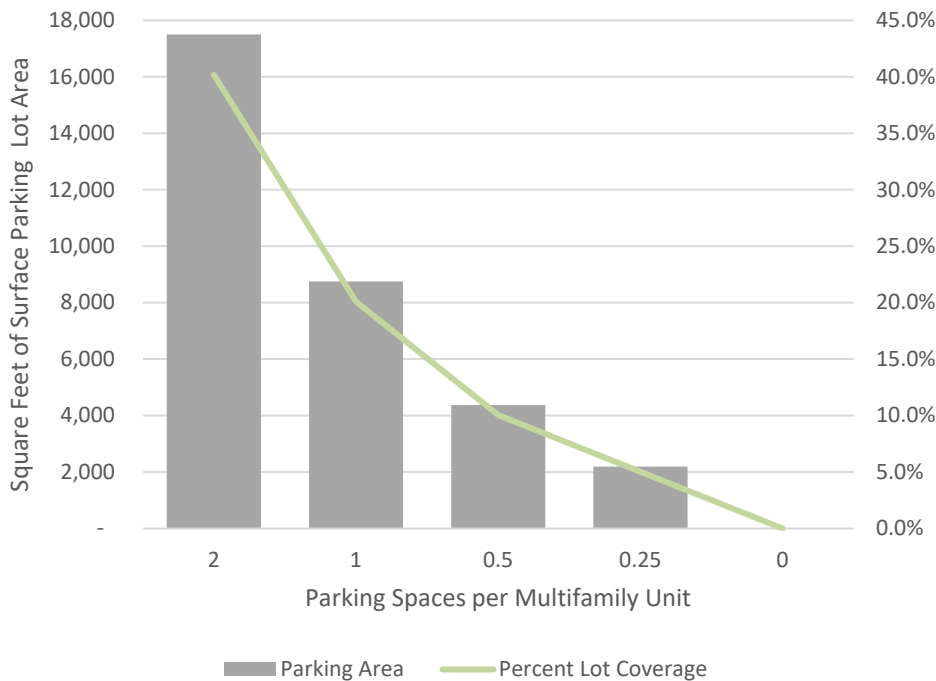


*Source: LCG.*

# Podium-Style Mixed-Use Housing over Retail

To evaluate the impact of parking costs on podium-style development, LCG used the following assumptions:

- 150 units on a 1-acre site
- 5,000 square feet of commercial area
- Residential income of $1.76 per square foot
  - This is the market asking rent per square foot in the Midvale/Murray submarket ($1.66) increased by the expected year over year rent growth (6.2%)
- Structured parking fee of $100 per space per month

o *Note: monthly parking fees range widely in the WFRC region. LCG found that recently built apartments with structured parking charge between $75 and $135 per month for a parking space. In some buildings and/or jurisdictions the monthly parking rent may be lower. When the parking fee is lower, structured parking has a larger negative impact on feasibility. In addition, lower parking fees indicate a larger subsidy via the rent charged to all tenants, regardless of parking space utilization.*

- No land cost
- No multifamily tax exemption

In the first example, LCG assumed that one space would be required per 1,000 square feet of retail space. In the second example, LCG assumed that three spaces would be required per 1,000 square feet of retail space.

## Example 1: One Space Required per 1,000 Square Feet of Commercial Space

In Figure 39 and Figure 40 below, podium construction is higher than the maximum supportable project cost in each scenario. However, reducing the parking ratio brings the project much closer to the feasibility threshold. Rents 10% or 20% higher than the level used by LCG in this analysis could help close the gap in the scenarios with lower parking minimums.

**Figure 39. Total Costs of Podium Construction at Different Parking Ratios**
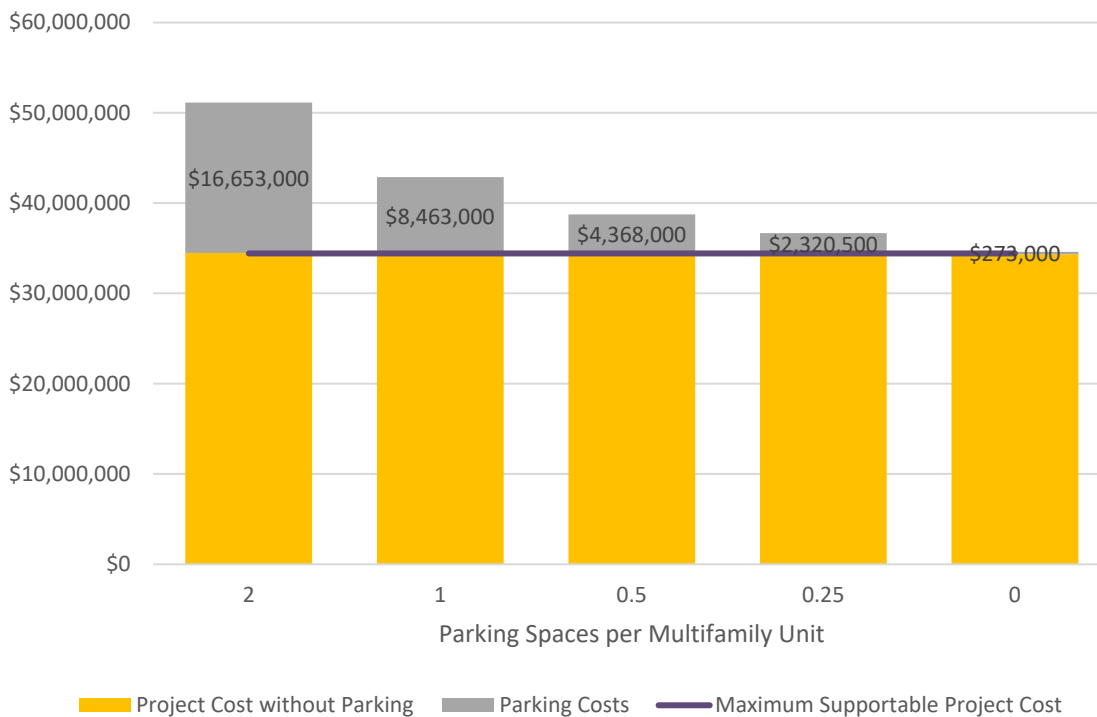


*Source: LCG.*

**Figure 40. Total Costs per Unit of Podium Construction at Different Parking Ratios**
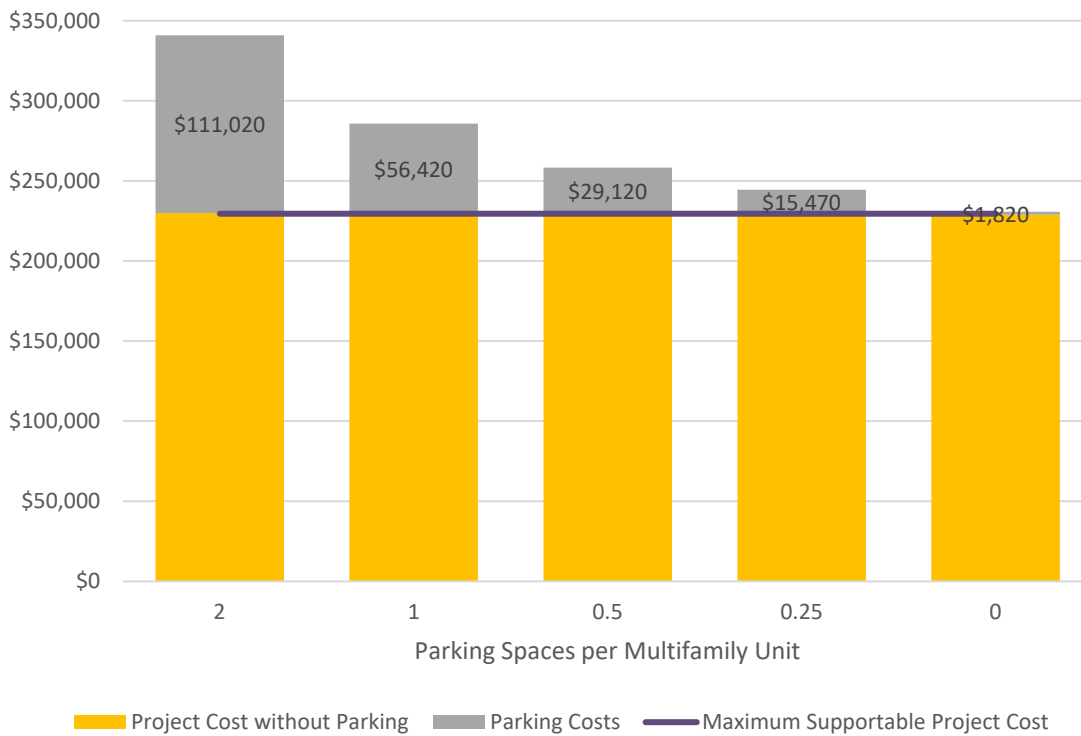


Source: LCG.

Reducing minimum parking requirements from two per unit to one per unit results in cost savings of $54,600 per unit, or $8.19 million across a 150-unit building. While in this example the project is still not feasible (likely due to a combination of low rent and high construction costs), the feasibility gap is significantly smaller.

Structured parking is extremely expensive, estimated at roughly $42,000 per space in hard costs. This means that in projects with higher parking ratios, parking costs can use up a substantial portion of the budget. Figure 41 and Figure 42 below show the total parking cost as a percentage of total project costs as well as parking hard costs as a percentage of total hard costs. When two spaces are required per multifamily unit and one space is required per 1,000 square feet of commercial space, roughly one third of costs is attributable to parking.

**Figure 41. Total Parking Cost as a Percentage of the Total Project Cost**
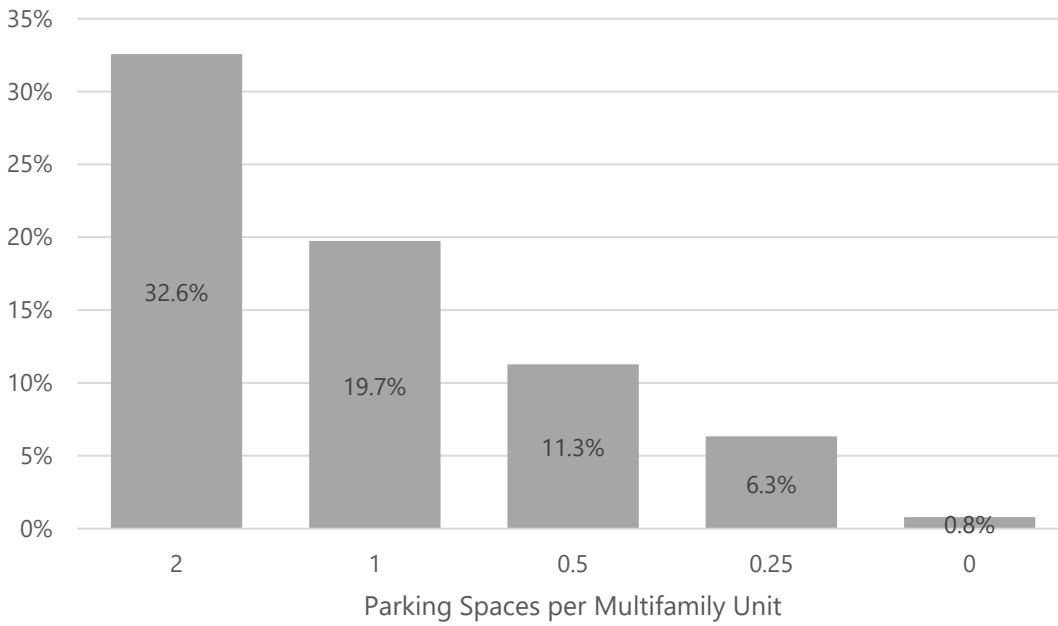


*Source: LCG.*

**Figure 42. Parking Hard Costs as a Percentage of Total Hard Costs**
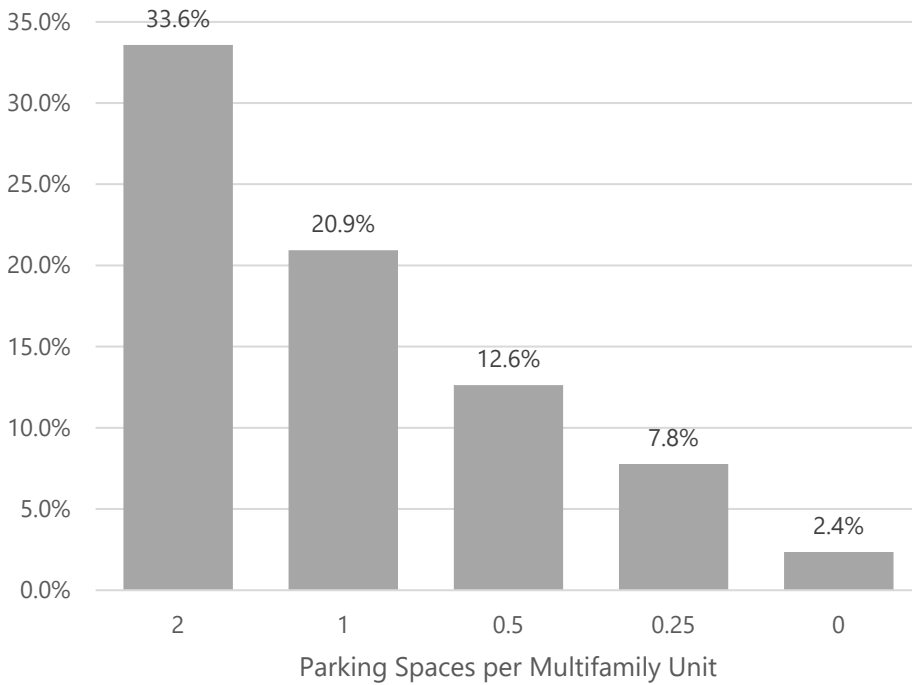


*Source: LCG.*

## Example 2: Three Spaces Required per 1,000 Square Feet of Commercial Space

Requiring 3 spaces per 1,000 square feet of commercial space increases project costs even further beyond the feasibility threshold. Combining a 3/1000 commercial parking ratio with a 2:1 residential parking ratio results in parking costs estimated at nearly $17.2 million, or nearly $115,000 per unit. This is roughly $546,000 more than the cost of providing two spaces per unit and one commercial space per 1,000 SF in Example 1.

**Figure 43. Total Costs of Podium Construction at Different Parking Ratios**
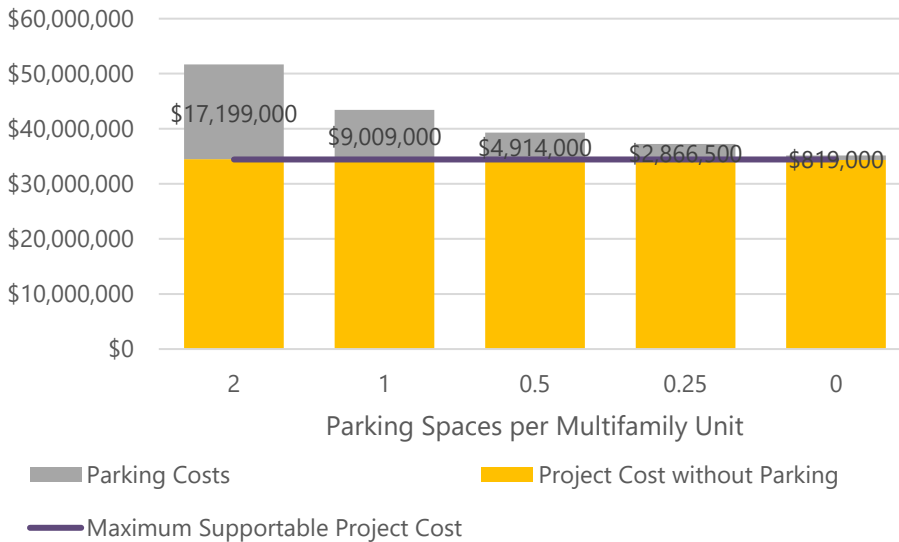


*Source: LCG.*

**Figure 44. Total Costs per Unit of Podium Construction at Different Parking Ratios**
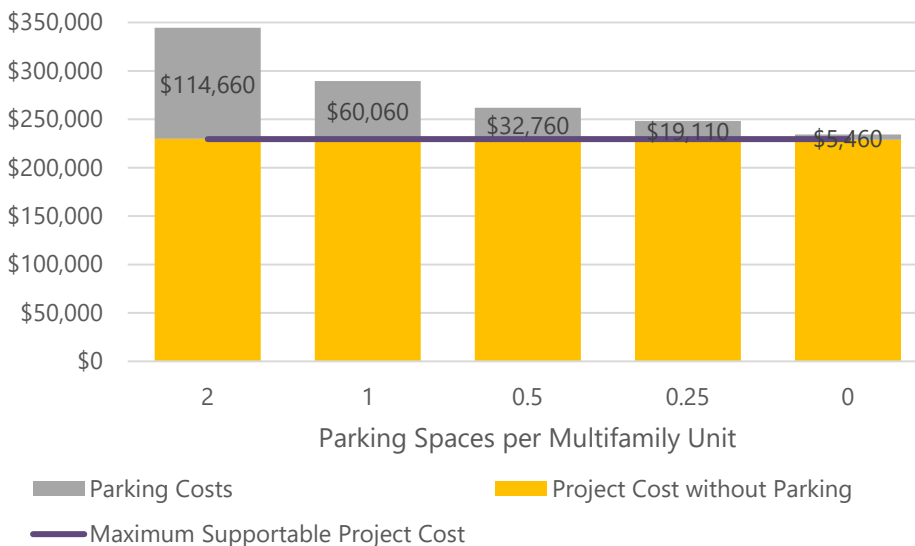


*Source: LCG.*

As in Example 1, parking makes up roughly a third of both total project costs and hard costs.

**Figure 45. Total Parking Costs as a Percentage of Total Project Costs**
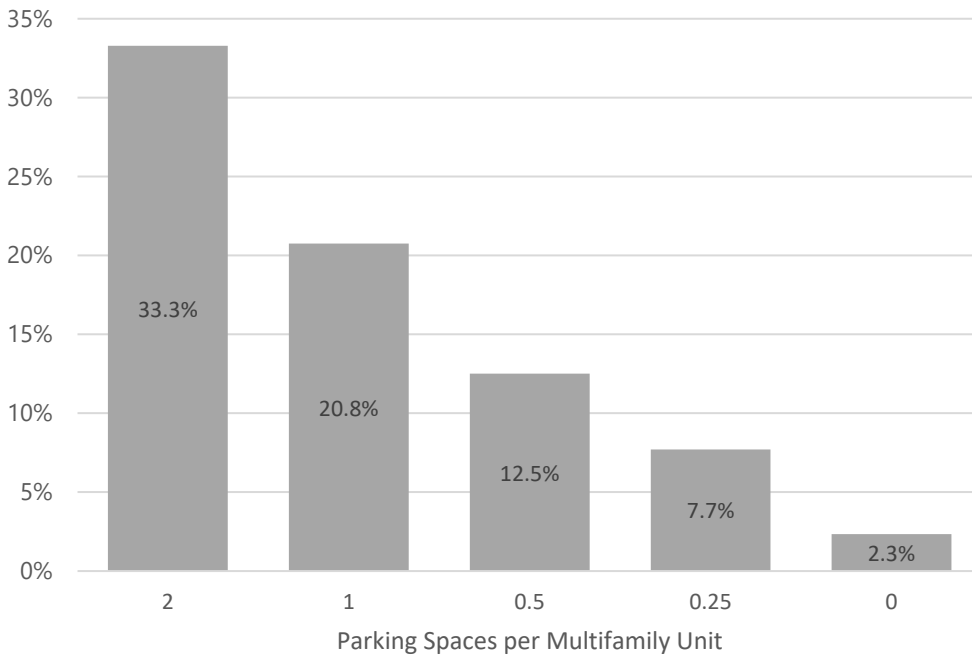


*Source: LCG.*

**Figure 46. Parking Hard Costs as a Percentage of Total Hard Costs**
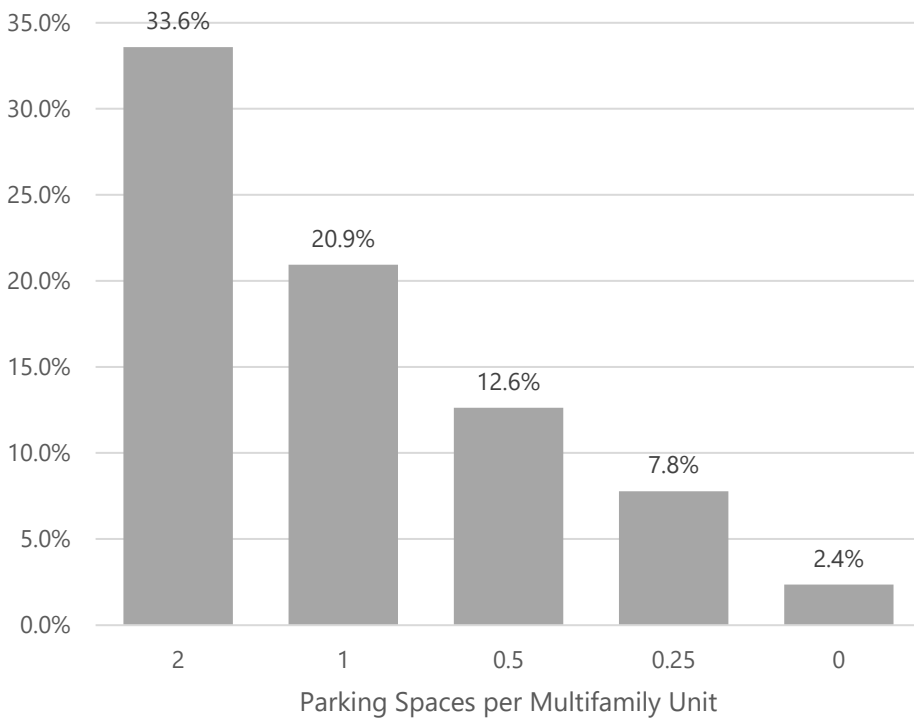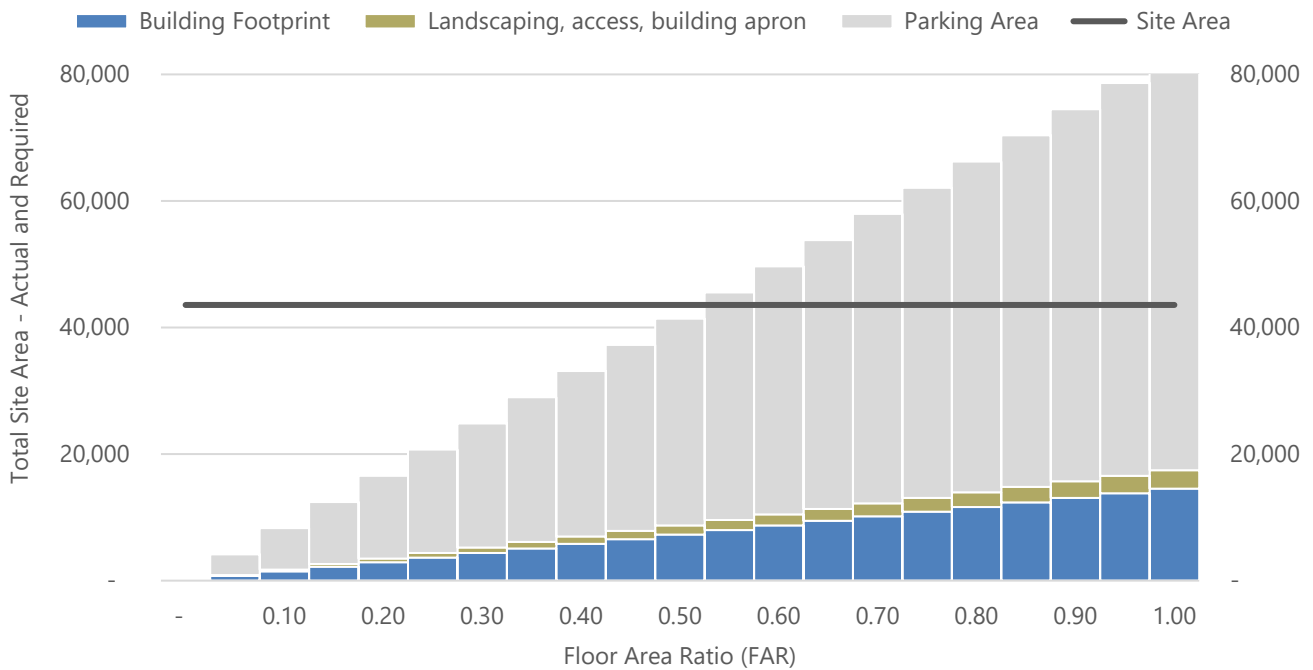


*Source: LCG.*

## Office

While the future of office space is uncertain, the COVID-19 pandemic has significantly increased the number of workers who telecommute full or part time. This presents an opportunity to reevaluate how much parking should be built alongside new office construction.

### Surface Parking

Many office buildings, particularly those in suburban or other car-dependent areas, include a large amount of surface parking. As in the housing example above, the main impact to development feasibility for a surface-parked office building is space rather than cost. Figure 47 below shows a hypothetical in which a 1-acre (43,560 square foot) lot has a 3-story office building, landscaping, and surface parking at a variety of floor area ratios (FAR). In Figure 47, four spaces are required for every 1,000 square feet of office space.

**Figure 47. Space Required to Build an Office Building at a Variety of Floor Area Ratios and a Parking Ratio of 4/1,000 SF**



*Source: LCG.*

The black line represents the 43,560 square foot site area. In this example, projects with an FAR over 0.50 could not be built on this site. Alternatively, requiring just one parking space per 1,000 square feet of office space enables FAR of 1.00 or more, as shown in Figure 48 below.

**Figure 48. Space Required to Build an Office Building at a Variety of Floor Area Ratios and a Parking Ratio of 1/1,000 SF**
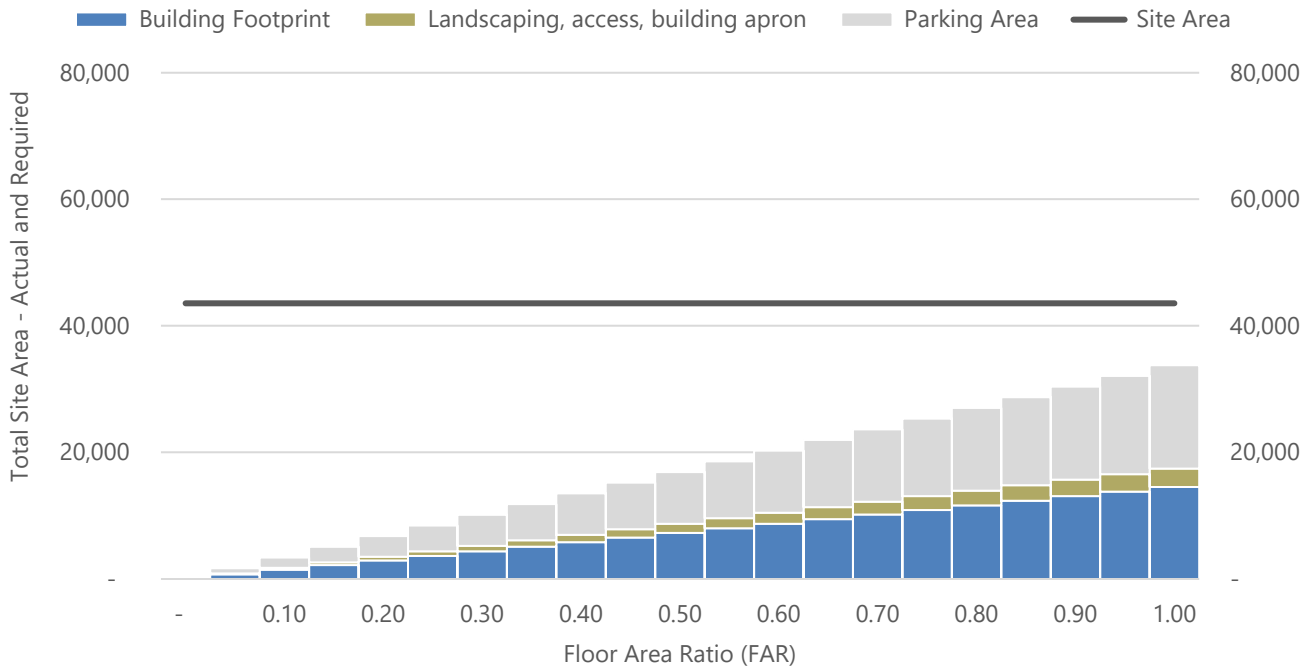


*Source: LCG.*

By reducing the surface parking on site, developers can build more office space on a lot of the same size, increasing the taxable value of the property. In addition, developers may be willing to provide public amenity space if less land is dedicated to vehicle storage.

## Structured Parking

According to 2022 data from RS Means, the typical price of constructing a 5 to 10 story office building in Salt Lake City is $177.53 per square foot. According to this estimate, the total cost of constructing an 80,000 square foot building in the Salt Lake City market is roughly $14.2 million. Figure 49 below shows how much structured parking would add to the cost of a 5 to 10 story 80,000 square foot building at different parking ratios.

**Figure 49. Total Cost of an 80,000 Square Foot Office Building with Structured Parking**
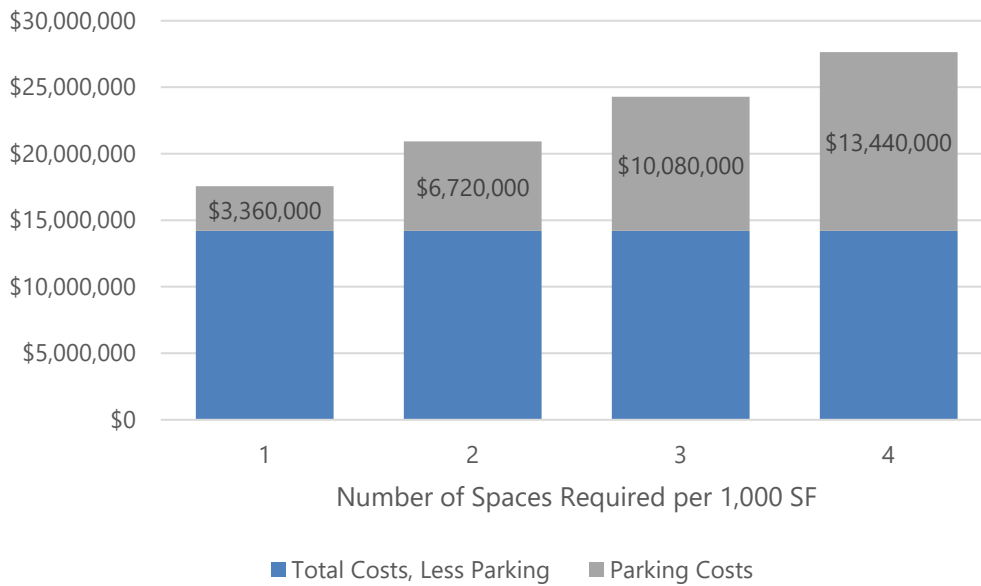


*Source: RS Means, LCG.*

Requiring three spaces per 1,000 square feet of office space in this instance adds over $10 million to project costs. Reducing that ratio to two spaces per 1,000 square feet generates a savings of roughly $3.4 million, substantially increasing the likelihood that a project will be feasible even in an environment with high construction costs.

## Retail

In the WFRC region, retail parking ratios tend to vary by use. In Midvale's mixed-use zone, for example, a café is required to provide three spaces per 1,000 square feet of commercial space while restaurants are required to provide ten spaces per 1,000 square feet and medical facilities are required to provide five spaces per 1,000 square feet. Typically, retail establishments occupy a single story, and they rarely have structured parking unless that parking is shared with another use, for example in a mixed-use podium building.

Figure 50 below shows the space needed for a one-story retail building with surface parking on a 1-acre lot with a required parking ratio of 4 spaces per 1,000 square feet of commercial space. In this example, FAR would be restricted to 0.35, as any FAR greater than that would require more than one acre of land.
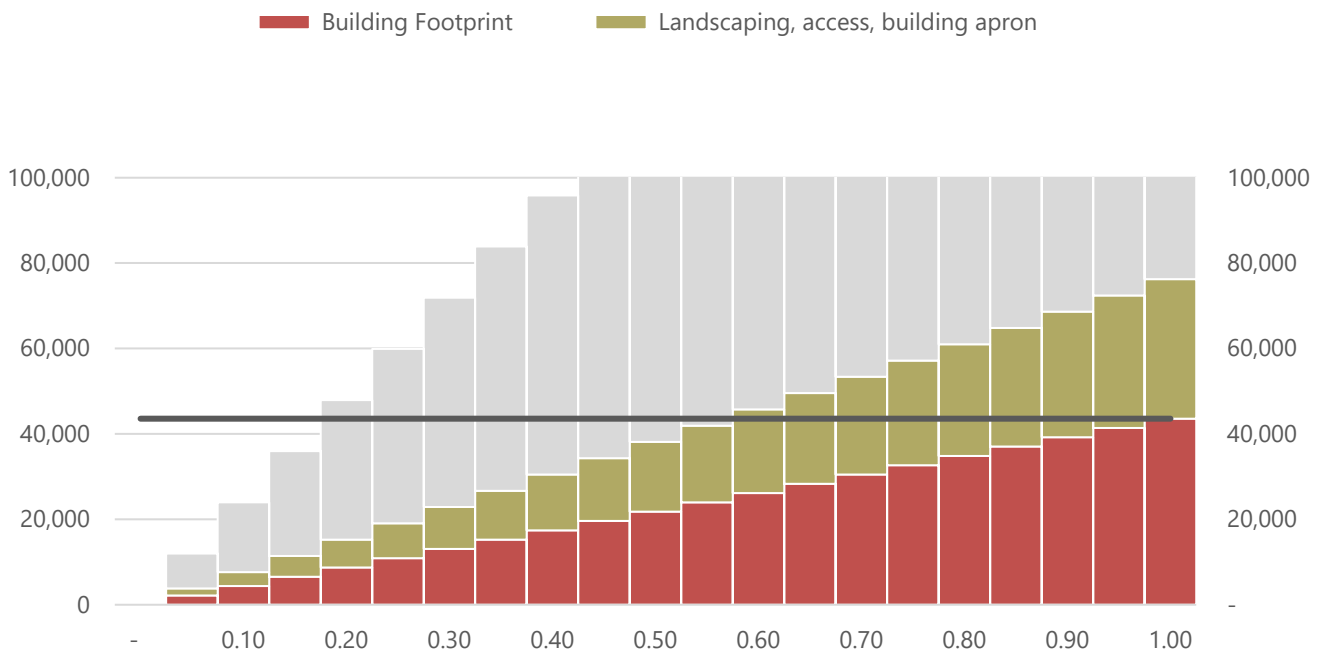
**Figure 50. Space Required to Build a Retail Building at a Variety of Floor Area Ratios and a Parking Ratio of 4/1,000 SF**
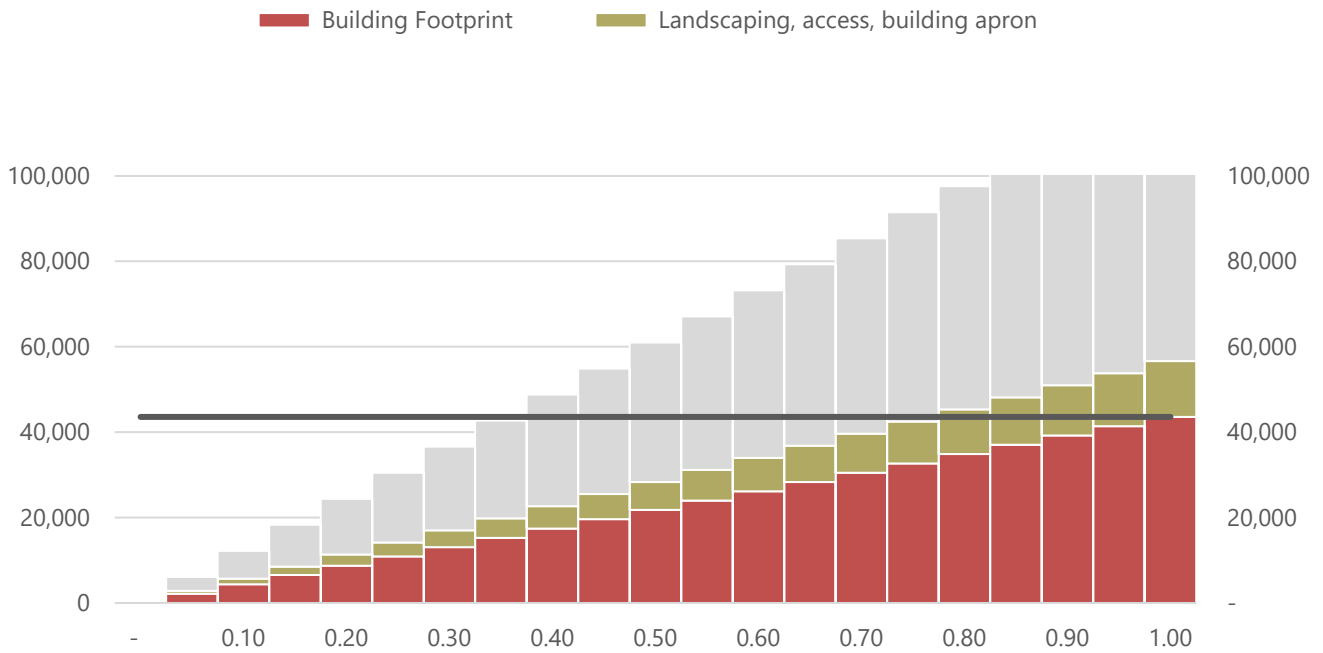


*Source: LCG.*

If the parking ratio is 10 per 1,000 square feet of commercial space, as is required for restaurants, FAR cannot be greater than 0.15 on a 1-acre lot.

**Figure 51. Space Required to Build a Retail Building at a Variety of Floor Area Ratios and a Parking Ratio of 10/1,000 SF**

If, however, the parking requirement is reduced to one space per 1,000 square feet of commercial space, retail establishments could be built at 0.65 FAR on a 1-acre site.

**Figure 52. Space Required to Build a Retail Building at a Variety of Floor Area Ratios and a Parking Ratio of 1/1,000 SF**
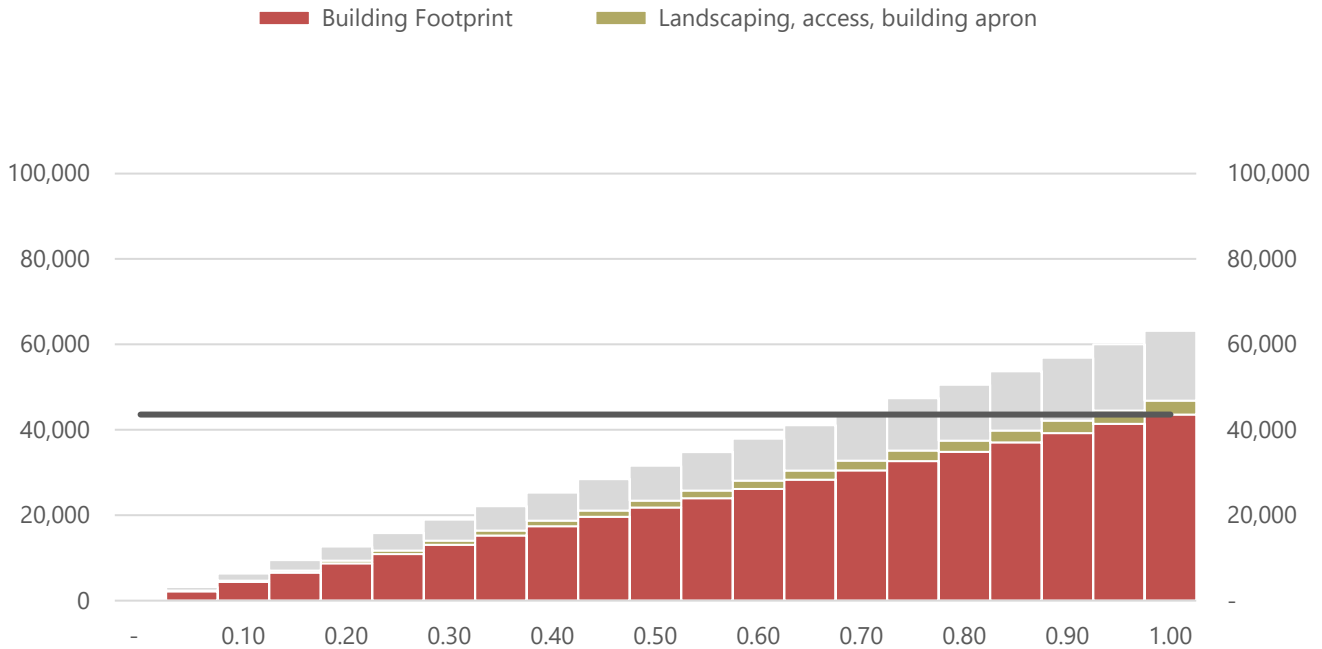
Building parking at a lower ratio also reduces the prevalence of large parking fields, which increase heat island effects and reduce walkability. WFRC's goal of creating compact, walkable communities is undermined when too much parking is required.

## Findings and Recommendations

- Parking has a direct impact on feasibility for housing, office, and retail developments.
- Large surface parking lots reduce the attractiveness and walkability of an area and contribute to heat island effects and stormwater runoff issues. This runs counter to WFRC's goal of maintaining a sustainable environment including water, agricultural, and other natural resources.
- High parking minimums prevent cities in the WFRC region from meeting regional goals for compact, walkable, fiscally responsible communities with safe, user-friendly streets.
- The high cost of providing structured parking can lead to higher rents for tenants, including those without cars.
  - o If, for example, two spaces per multifamily unit are required in a structured parking lot, a developer's revenue target must increase by $4,782.48 per unit ($398.54 per month) in order to maintain the desired return. Most of this cost will be distributed to all tenants via higher rents, regardless of whether every household utilizes the parking.
- Surface parking, while significantly less expensive than structured parking, reduces the footprint and FAR of what can be built on site, which can impact feasibility as well as future property tax revenues.

- An increase in hybrid and full-time remote work reduces the demand for on-site off-street parking at office buildings and parks, and opens up opportunities to develop some parking lots into housing or mixed-use projects
- LCG recommends that cities in the WFRC region reduce parking minimums and/or allow flexibility in meeting requirements through shared parking models.
- Cities should also consider counting on-street parking spaces toward required parking, especially for developments that build or improve local roads.

# Memorandum

Date:        September 27, 2022

To:          Julie Bjornstad, AICP, Senior Transportation Planner

From:        Christopher Bender, Anjum Bawa, and Preston Stinger

**Subject:    Task 3 – Case Study Review Summary**

*UT22-2341*

## INTRODUCTION

This technical memorandum outlines the effects of modernized parking on four development sites across the United States that we selected as case studies; these case studies show how modernized parking will likely affect communities in and around Utah as it is implemented.

To show how modernized parking will likely affect communities in Utah, this case study review seeks to answer the following key questions:

- **Background:** What problems and issues existed prior to these neighborhoods and cities taking a new approach to parking policies and strategies?
- **New Approach:** What policies, reforms, and strategies were implemented and why?
- **Lessons Learned:** What were the outcomes, lessons learned, and issues to be avoided?

Provided below are key takeaways from the following case studies:

1. **Orenco Station Transit Oriented Development (TOD) in Portland, Oregon**
2. **Fruitvale Village TOD in Oakland, California**
3. **City of Buffalo, New York**
4. **Seattle, Washington**

We reviewed numerous examples of communities taking steps to modernize parking with in a district or citywide. However, the cases studies selected below presented the most diverse set of contextual factors as well as bold steps to change the status quo on parking policy and regulations.

# ORENCO STATION TOD, PORTLAND, OR

## Background

Orenco, Oregon was founded in 1867 and remained relatively rural until the 1950s. As described by Michael Mehaffy, the project manager for Orenco Station, beginning in 1997, "After World War II, [the town's] light rail line was ripped out, replaced with government-subsidized roads and freeways. Walkable streets were replaced with spaghetti cul-de-sac neighborhoods and arterials, and mixed-use neighborhoods were replaced with single-use strip malls and office parks. Everything was accessible almost exclusively by car."[1] As the town became more suburbanized, the bulk of its zoning was converted from industrial use to subdivision housing. The suburban landscape continued into the 1980s when the City of Hillsborough created a 300-acre urban renewal district in 1989.

## New Approach

Under Portland's 2040 regional plan, Orenco Station was designated a "town center," and Portland's METRO regional government committed to creating new residential developments along a Light Rail Transit (LRT) line, the MAX Light Rail, to provide a greater density of light rail users in the new corridor.

In addition to the new LRT line, new zoning ordinances allowed for "skinny" (20 foot) streets, close maximum street setbacks (19 feet), side yard easements (allowing high privacy windows for one home while the adjacent home has full use of the side yard), "granny flat" accessory dwellings, live/work homes, and alley-loaded garages.[2]

Within the Town Center, buildings are required to line the streets and provide parking behind the buildings to provide better access for pedestrians and cyclists. Mixed uses are allowed and, in some cases, even required. The new goal of zoning was to ensure a heterogeneous mix of land uses. Notably, due to the strong pedestrian connectivity, the Urban Land Institute (ULI) refers to Orenco Station as both a transit-oriented and pedestrian-oriented development.[3]

As of 2018, Orenco Station contained 1,944 homes (including a mix of single-family homes, townhomes, accessory units, loft units, and apartments) and 56,730 square feet of commercial and work-related space (Ewing, et al., 2018).

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[1] Mike Mehaffy, "Orenco Station in Hillsboro, Oregon: UnSprawl Case Study," Terrain Publishing (www.terrain.org), Issue 10, Fall/Winter 2001.

[2] Reid Ewing, Guang Tian, Keunhyun Park, Sadegh Sabouri, Preston Stinger, and David Proffitt, "Comparative case studies: trip and parking generation at Orenco Station TOD, Portland Region and Station Park TAD, Salt Lake City Region," December 2018.

[3] ULI, "ULI Development Case Studies: Orenco Station," Volume 29, Number 1, January-March 1999

With regards to its parking supply, Orenco Station shares residential and commercial parking in the sense that the same spaces can be used at different hours by different users. In addition, Orenco Station also allows for shared parking between TOD and transit park-and-ride users.

## What can we learn from the outcomes?

The Orenco Station TOD demonstrates the benefits of shared parking and the detriments of bundled (i.e., reserved) residential parking. Reid Ewing's case study examined the parking utilization of the Orenco Station development and compared it with the parking utilization of six other similar TODs. This case study indicated that several factors likely contributed to the reduced parking demand: pedestrian and transit access, shared parking at retail and park-and-ride facilities, and shared/unbundled (i.e., not reserved) residential parking.

The residential parking demand at Orenco Station was observed to be significantly lower than the guidelines outlined in the Institute of Transportation Engineers (ITE) *Parking Generation* manual guidelines. The ITE guidelines recommended providing 1.2 parking stalls per residential unit. Anticipating reduced parking demand, the development only provided 1.08 parking stalls per unit. However, data collected during the 2018 study showed that the TOD's peak residential parking occupancy only reached 0.63 parking stalls per unit, less than 60% of the TOD's supply, indicating that parking in the development was still oversupplied.

Public parking occupancy rates at Orenco Station were found to be higher than residential parking occupancy rates. Notably, Ewing's study found that the high public parking occupancy rates continued overnight, which suggests that some residents may have been parking in public spaces to avoid monthly parking charges. Using public parking overnight to avoid parking charges is likely encouraged by an oversupply of parking in the TOD. However, the trend of residents using public parking to avoid paying for residential parking permits further highlights the benefit of sharing parking among different users.

Aside from the benefits of reduced parking demand, ULI also found that higher densities and mixed housing types were economically successful in Orenco Station's previously suburban area. The design team attributed the development's success to the attention paid to the public spaces, which offsets any disadvantage in creating smaller private spaces. Orenco Station's community and pedestrian orientation have been cited in post-purchase focus groups as primary reasons for purchasing a home at Orenco Station (ULI, 1999).

# FRUITVALE VILLAGE TOD, OAKLAND, CA

## Background

Fruitvale was once considered Oakland's second downtown. However, after World War II, the factories gradually closed, and the neighborhood began to decline until safety was a concern among visitors and residents.[4]

Leading up to the Fruitvale Bay Area Rapid Transit (BART) station's opening in 1972, buildings and homes were demolished to make way for the elevated train system. The street grid was reconfigured, and giant surface parking lots for commuters were established; the free parking made the station popular with commuters.

## New Approach

To improve ridership at the station, BART proposed constructing a stand-alone parking garage in the 1990s, which was received negatively. The Unity Council, a local nonprofit community development corporation seeking alternatives to the proposed garage, held community meetings to develop a revitalization strategy for the area. Over the next decade, the area was developed into two mixed-use buildings over four acres, including affordable housing, social services, and retail spaces. Fruitvale Village was built to serve as a mixed-income, socially equitable, transit-oriented development.

Phase 1 of the development included 47 residential units (10 of which are for low-income residents), 40,000 square feet of retail space, and 114,509 square feet of office space. These spaces include community social services, including a child development center, a library, and a health clinic. The development also includes surface and structured parking spaces and a bike garage for over 200 bikes.

Notably, Fruitvale's parking facility allows for shared parking between all land uses in the village. That is, while Fruitvale charges $3 per hour for parking from 10 AM to 3 PM, the residential parking supply is shared with the commercial and park-and-ride parking supply.[5] According to one case study of the development's parking, "Fruitvale has a hybrid parking policy, where the first space/permit comes with the apartment and a second space (if renters want one) costs them $90 per month. Very few renters opt for the second space—evidence that unbundled parking suppresses parking demand" (Ewing, 2016).

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[4] ULI, "ULI Development Case Studies: Fruitvale Village I," Volume 35, Number 4, January-March 2005

[5] Reid Ewing, Guang Tian, Torrey Lyons, Kathryn Terzano, "Trip and parking generation at transit-oriented developments: Five US case studies," December 2016

## What can we learn from the outcomes?

Due to the successful implementation of equitable development, as of 2005, 43% of Fruitvale's population could be classified as Latino, while the other 57% consisted primarily of people of Asian or African American descent (ULI, 2005). Low-income residents were able to remain in central city neighborhoods, and energy consumption and emissions caused by cars were also reduced.[6]

In 2010, Fruitvale Village was approved to begin phase 2 of development.[7] Previously a large surface 547-space parking lot, the 3.4-acre site to the south was approved to include a mix of 275 multi-family affordable and market-rate residential units with only 277 total parking spaces.[8]

Being close to the BART and bus transit improves destination accessibility via transit while reducing reliance on personal vehicle use. During their case study of the Fruitvale Village, Ewing et al. found that, of the trips going in/out of Fruitvale, only 23% are by auto. Additionally, Fruitvale land uses experienced a 48.2% trip reduction compared to ITE *Trip Generation* rate guidelines (Ewing, 2016).

Ewing's case study also found that shared parking was particularly effective where permitted in the Fruitvale Village. Nearly 100% of the park-and-ride parking spaces were occupied from 11:00 AM to 2:00 PM, though demand dropped quickly after that, reaching a low of 5% occupancy at midnight. Additionally, more than 80% of the TOD garage parking spaces were occupied from 11:00 AM to 2:00 PM; demand in those lots dropped to around 30% occupancy after 8:00 PM, when most parked vehicles likely represent residential demand. Of all the similar TODs in Ewing's study, Fruitvale Village was found to maintain the highest parking occupancy rates due to shared parking at the development. Despite the high occupancy rate, the parking facility was not found to be over capacity; rather, the parking lot was "right-sized" as the peak parking demand was approximately 84% of supply, but only 19% of ITE Parking Generation rate guidelines (Ewing, 2016).

When shared parking is limited, even exemplary developments do not utilize their parking facilities to their full potential. (Ewing, page 132 [pdf page 8])

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[6] *Jen Gray-O'Connor, Critical Sustainabilities: Competing Discourses of Urban Development in California, "Fruitvale Transit Village," June 2015.*

[7] *City of Oakland, "Fruitvale Village (Phase 2) Approved Plan", May 2010*

[8] *ESA, "Fruitvale Transit Village (Phase 2) Final Environmental Impact Report," April 2010*

# BUFFALO, NEW YORK

The City of Buffalo recently made citywide changes to minimum parking requirements. It was the subject of research[9] to understand the effects of changes to parking mandates and whether the shift to market-driven parking policy resulted in fewer off-street parking spaces among major developments. This case study focuses on a key reform to parking related to minimum parking requirements (MPRs), which were originally introduced to the zoning code of municipalities in the mid-20th century to limit the potential of parking spillover and high demand for on-street parking in neighborhoods with the rise in automobiles as a primary mode of transportation. MPRs, as we now know, have resulted in changing the landscape of our urban areas with vast amounts of surface parking and other inefficiencies, including underpriced automobile storage, inability to share parking, and deprioritizing transit and active modes of travel. In general, the consequences of high MPRs have been reduced accessibility, and a decrease in sustainability, among other economic disadvantages in the form of higher rents, prices of goods, etc.

## Background

MPRs were introduced in Buffalo in the 1950s to accommodate suburban commuters and maintain economic activity in the urban core. Despite the high residential densities, mixed-use neighborhoods, and relatively good quality public transportation system, the city prioritized automobile mode with MPRs. After decades of decline in economic activity, Buffalo is again attracting development interest because of its legacy infrastructure and amenities, strategic location for trade with Canada, and emerging innovation sector. However, it could benefit from updating and reforming some of the outdated land use, zoning, and transportation policies.

## New Approach

By enacting a form-based zoning code that encourages walkability and mixed-use developments, the City of Buffalo removed off-street MPRs in April 2017. It became the first city of its size in the country to eliminate minimum parking requirements. The modern approach encourages developments to provide off-street parking based on context and particular project constraints.

In moving the priority from automobiles to other modes, the city adopted complementary policies, including:

- Bicycle parking minimums at multi-family residential units. Increased building heights, increased density, and parking in the rear of the building in TOD districts
- Transportation demand management strategies required as part of major site permitting to reduce single-occupancy vehicle (SOV) mode share.

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[9] *Minus Minimums: Development Response to the Removal of minimum Parking Requirements in Buffalo (NY), Daniel Baldwin Hess and Jeffery Rehler, 2021.*

- Developers could provide more or less parking compared to the modal objective of a development project. However, if parking exceeds 10%, it requires a written justification.

## What can we learn from the outcomes?

In removing MPRs, the City of Buffalo allowed the market to influence the parking supply. There was initial skepticism on whether this approach to parking would discourage real estate investments. Provided below are some findings from a review of developments that came after the repeal of MPRs:

- The effects of removing MPRs was different for each land use. For example, developers of mixed-use projects took advantage and built less parking than required under the previous parking regulations, while single-use residential, commercial, and civic projects provided more parking than previously required.
- Parking was continued to be proposed/provided as part of new development based on market forces
- Cumulative of all new developments permitted after the repeal of MPRs built significantly fewer parking spaces than mandated under the prior MPRs. In its first two years post-reforms, the research indicates that 21% fewer spaces were built.
- The package of policies, including eliminating MPRs and requirements of bicycle parking and TDM requirements, "nudged" developers to carefully consider the amount of parking supply
- Eliminating parking minimums can encourage developments to right-size parking supply based on market forces as opposed to outdated parking requirements that may not match actual parking demand or context.
- Some new developments shared existing excess parking as opposed to building new parking
- New parking built supported multiple uses sharing based on complimentary temporal demand
- The change in parking policies encourages transit-oriented developments
- The City Council can still decide to require parking through a review process for projects larger than 5,000 square feet.

# SEATTLE, WASHINGTON

In April 2018, the City of Seattle passed sweeping parking reforms with respect to parking requirements. Led by the Seattle Department of Construction and Inspection, the reforms provided building owners to make parking facilities with excess capacity available for public use to improve parking availability in neighborhoods and reduce costs associated with parking requirements.

## Background

The City of Seattle has had a progressive parking code to curb the excessive supply of parking, especially in areas that are well served by frequent transit. In 2012, the city reduced its minimum parking requirements to incentivize housing. Seattle removed minimum parking requirements in high-density urban centers, eliminated parking requirements for residential and non-residential uses in medium-density neighborhoods located within one-quarter of a mile of a public transit stop with 15-minute headway, and thirdly, the city reduced minimum parking requirements by 50% on major transit corridors. However, Seattle continued to see a vast majority of housing units (87%) in urban centers and urban villages where parking is provided. A comprehensive survey of hundreds of residential buildings in King County (including 95 buildings in Seattle) revealed that 35% of residential parking garage spaces were not utilized. [10]

Seattle has been making significant investments in transit infrastructure, including the ST1 and ST2 funding packages, with funding of 54 miles of light rail along with ST3 passed in 2016, which will add another 62 miles of light rail and 64 miles of bus rapid transit. Seattle also passed Mode Seattle, a $930 million in multimodal transportation involving seven RapidRide lines and upgrades to bus service.

## New Approach

The reforms[11] to the parking regulations were aimed at providing more flexibility for use of parking and reducing the cost of excessive parking requirements for residential and mixed-use projects in urban areas. Provided below is a summary of the reforms[12]:

- *Flexible-Use Parking***:** This is a new category added to the land-use code. This type of parking would allow extensive use of new and existing parking facilities. These would be extra parking spaces not already dedicated for a specific use and can be offered to nearby properties, residents, carsharing companies to lease.

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[10] *SDCI Takes A Stab at Parking Reforms, Doug Trumm, The Urbanist, September 19, 2017*
[11] *Seattle SDCI – Short Summary of Neighborhood Parking Ordinance #125558, www.Seattle.gov*
[12] *Deep Dive: SDCI's Draft Proposal to Improve Parking Availability, Stephen Fesler, The Urbanist, September 2017.*

- ***Refining Parking Requirements***: Parking requirements for specific uses were refined based on various factors. For example, for low-income housing, parking was reduced to 0.2 spaces per unit compared to a current standard for housing for households at or below 60% of area median income ranging between 0.33 space and 1.0 space per unit. For households at or below 80% of the area median income, the range is 0.167 – 0.33 spaces. Some other changes include removing exceptions in Downtown zones to provide more parking than maximum limits, exempting public uses and institutions within a frequent transit service area from parking requirements, and allowing parking reductions to the minimum necessary to support a proposed activity (except for Downtown Zones) if adequate technical evidence is furnished.

- ***Bicycle Parking:*** This involved increased bicycle parking requirements related to specific uses. Also, the reforms include performance standards for better deployment of bicycle parking, such as secured facilities, long-term/short-term parking, lighting, access, signage, weather protection, etc.

- ***Frequent Transit Service Measurement***: Parking requirements for residential and non-residential uses can be waived or reduced if these uses are located within 1/4 of a mile distance from frequent transit service. The city saw several projects being challenged on the basis of measuring frequent transit service. The reform to resolve this issue by revising the definition of "frequent transit service" and adding a new term, "transit service headway."

Other changes include: State Environmental Policy Act (SEPA ) policy updates, mobility mitigations including subsidies for participation in carsharing, bikesharing, etc., reforming parking spillover mitigations, incentivizing car sharing unbundling parking requirements for residential multi-family development with 10 or more dwelling units, accessory parking distance increased from 800 feet to 1,320 feet, etc.

## What can we learn from the outcomes?

The original parking reforms in 2012 have already had significant effects in reducing the parking supply in new buildings[13]. Most buildings, which were not required to provide any off-street parking in the dense urban core, provided less than one space per unit. Most developers constructed parking very close to the minimum parking requirements. The 2012 reforms worked to encourage developers to build fewer parking spaces compared to prior requirements. Especially in the urban centers, urban villages, and transit-oriented locations, developers built 40%

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[13] *How Developers Respond to Parking Reform – Reducing minimum parking requirements can help alleviate urban housing crises, 2020, C.J. Gabe, Gregory Pierce, Gordon Clowers.*

fewer parking spaces than would have otherwise been required. Lessons from the 2012 reforms pointed to the following:

- Minimum parking requirements often constrain developers. Reducing those requirements leads to less parking, which means cost savings for the developer and lower housing prices.
- The city reduced parking standards across all its urban centers and transit-oriented neighborhoods, making parking policy predictable, understandable, and uniform. Staff emphasized to local leaders the importance of a linked land use and transportation regional growth strategy. City's elected officials successfully communicated the importance of parking reforms to the public through a combination of economic, environmental, and equity arguments.
- The new set of reforms package in 2018 eliminates issues with respect to specific opposition to reduced parking near high-frequency transit and improves on other areas of the land-use code to make parking policy more effective and aligned with the environmental goals.

## NEXT STEPS

The above case studies highlight four different cities and neighborhoods that modernized approaches to parking policies and strategies and how these bold changes have fared over the past few years in achieving the objectives they set out to achieve. These varied sets of policy changes and strategies will be further evaluated alongside valuable lessons learned to help craft our toolbox of policies and strategies that can be recommended for specific contextual settings in the State of Utah.