



## MEMORANDUM

**To:** Andrea Pullos, Salt Lake County  
**From:** Avenue Consultants  
**Date:** September 12, 2012  
**Subject:** Cottonwood Canyons Parking Study – Recommendations

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### INTRODUCTION

At the request of the County, Avenue Consultants (Avenue) conducted a parking study for Big and Little Cottonwood Canyons to determine existing parking conditions, evaluate current needs, and plan for future parking needs. Avenue worked closely with the Canyons Parking Study Steering Committee (Steering Committee) that was assembled from representatives of key stakeholder agencies including Salt Lake County, UDOT, UTA, the US Forest Service, Salt Lake City Watershed Planning and Restoration, and the WFRC. Additionally, the City of Cottonwood Heights, Sandy City, the resorts, canyon user groups, law enforcement, and other interested parties were consulted outside of Steering Committee meetings regarding areas within their spheres of influence.

A previous memorandum (*Cottonwood Canyons Parking Study - Existing Conditions, April 26, 2012*) addressed the first phase of this study, which involved data collection and the identification of parking problem areas or “hot spots” within the canyons. This memorandum provides guiding principles for canyon-wide improvements and for site-specific improvement of “hot spots” and other critical locations. This memo summarizes the process used to identify canyon-wide guiding principles, select recommendation locations, develop canyon-wide and site specific improvement strategies, and establish refined recommendations and planning level cost estimates for the selected locations.

### Review of Existing Conditions

In the previous memo, Avenue described the development of a comprehensive database of canyons parking data that includes inventory, demand, and assignment. Demand data for this tool was gathered on high-use days during the Labor Day weekend of 2011 and the President’s Day weekend of 2012. The representative value of this data was validated by comparing ADT counts from the collection dates to ADT counts from peak days in previous years. Parking inventory assumptions were calibrated using the actual parking counts in order to identify the true parking capacity of the canyons. “Hot spots” were then identified at high-use areas with 80 percent or greater occupancy. A set of four figures included in the previous memo illustrates the canyon-wide parking statistics and summarizes the number of available and occupied parking spaces within a suitable walking distance of each “hot spot”.

### Future Demand and Long-Term Planning Efforts

In consideration of ongoing and anticipated future planning efforts, the Steering Committee agreed that the



calculation of future parking demand was not critical for developing near-term parking improvement recommendations that might also address some long-term conditions. The collected data showed that sites with identified parking needs are already nearing (or have well exceeded) their current parking capacities and will need attention in future analysis scenarios regardless of what growth models are used to project future demands.

Long-term canyons planning efforts (the Mountain Transportation Study and others) will adopt comprehensive transportation strategies (alternative travel modes, managed traffic flows, and large-scale improvements) that are intended to address primary demand drivers including resorts. Without knowing what the recommendations of these planning efforts will be, it is difficult to predict how parking in these areas will be affected. With this understanding, the strategy for identifying near-term improvement opportunities has instead focused on non-resort destinations and on parking improvements that are not driven by major transit or transportation improvements.

### **Actionable and Flexible Recommendations**

The near-term recommendations developed for this effort are intended to be actionable, but flexible. This means that improvement projects need not be initiated at every recommended location, nor need they follow every aspect of the written recommendations. Instead, the recommendations are a thoughtful starting point for developing improvement designs that are consistent with the goals of stakeholders.

Lead agencies have been identified for every recommendation location, with an attempt to align lead agency responsibility with jurisdictional authority for each of the areas affected by the recommendations. Lead agencies will be responsible for adopting, developing, and implementing improvements, or for choosing not to adopt, not to develop, or not to implement any of the recommended improvements. The detailed strategies provided in the recommendations can also be adopted or abandoned based on public preference, based on the direction of lead agencies, or based on the professional judgment of those tasked final design.

## **GUIDING PRINCIPLES**

The existing conditions memo was used to understand parking problems in the canyons, develop guiding principles for improvements, identify candidate locations for improvements, and then develop a list of acceptable strategies. Candidate locations were then narrowed and strategies were refined to reflect what appeared to be the best opportunities at each location.

### **Parking Improvement Goals**

The primary purpose of this study has been to identify parking needs and to develop recommendations that address those needs. With needs identified by observing the current demand and quality of parking, recommendation strategies have naturally been geared toward addressing deficiencies in supply and quality as well. Specifically, the recommendations of this study tend to align with the following goals, which are consistent with the guiding principles developed in the next section.

#### Parking Improvement Goals

1. Safety (pedestrian, bicycle, automobile, and emergency response)



2. Capacity (relative to current demand)
3. Environmental protection (watershed and natural resources)
4. Notification and wayfinding
5. Transit support
6. Maintenance and enforcement

### **Guiding Principles**

Committee members were presented with a comprehensive list of potential guiding principles that could be applied to recommended improvements. They were asked to add any principles that they felt had been missed and to eliminate any principles that they felt were not feasible. The remaining list included the following items (in no particular order):

#### Guiding Principles

- Preserve the watershed
- Redirect dispersed recreation demand from higher-use to lower-use areas
- Incorporate transit opportunities
- No net increase in total number of parking spaces in canyons
- Reallocate parking capacity to higher use areas
- Formalize parking to better control/quantify parking
- Improve support facilities near parking areas
- Consider parking fees or passes in canyons except at resorts
- Enhance bike safety
- Expand Park-N-Ride facilities
- Improve pedestrian safety by reducing or controlling pedestrian crossings
- Improve communication to motorists and canyon users via signs
- Plan for canyon closures
- Preserve the recreational experience by limiting capacities in some areas
- Close unimproved shoulders to improve safety/protect environment

It is important to note that the guiding principles were not unanimously received as being universally acceptable for application throughout the canyons. It is also important to note that no member of the steering committee was willing to remove any of the guiding principles from this list based on concerns or objections to potential application problems at specific sites, or even based on application difficulties within the canyons as a whole. Therefore, they comprise a list of guiding principles that each member of the Steering Committee was at least willing to consider as a potential solution to parking within the canyons.



## FOCUS AREA RECOMMENDATIONS

### Selection of Focus Areas

The Steering Committee narrowed thirty-five candidate improvement areas down to seventeen recommendation locations or focus areas. These locations included highly utilized locations inside the canyon, highly utilized locations at the mouth of the canyon, locations with opportunity for future transit or carpool expansion, and locations identified in previous study efforts (including the UDOT *Corridor Management Plan* (CMP) and *Wasatch Canyons Tomorrow*). While some CMP sites clearly demonstrated need based on demand, the selection of other CMP sites as recommendation focus areas was not necessarily driven by demand. These non-demand driven CMP sites were instead selected as opportunity sites to redistribute demand from over-utilized locations to new locations.

The seventeen focus areas selected for improvement recommendations are as follows:

#### Focus Areas

1. Gravel Pit Transit & Visitor Center (CMP)
2. Swamp Lot
3. Fort Union & Neighborhoods
4. Wasatch Boulevard Corridor
5. Dogwood Picnic Area & Vicinity
6. Ledgemere Picnic Area & Vicinity
7. Storm Mountain & Vicinity (CMP)
8. Mill B & Vicinity (CMP)
9. Butler Fork
10. Mill D & Donut Falls (CMP)
11. Silver Fork Lodge & Vicinity
12. Lower Guardsman to Winter Gate
13. Clayton Peak
14. Sandy Granite
15. Grit Mill & Vicinity (CMP)
16. Lisa Falls & Vicinity
17. White Pine & Vicinity (CMP)

### Development of Strategies for Focus Areas

Based on the locations and guiding principles developed by the Steering Committee, Avenue brainstormed and prepared a list of strategies that could be employed on a canyon-wide basis, and a list of strategies that could be employed at the various focus areas. These lists were presented to the Steering Committee to remove strategies that were considered infeasible by committee members. The refined lists were then used to begin



brainstorming specific concepts at each of the seventeen focus areas. Both lists are provided below in order to provide perspective on what strategies were considered and how those strategies could be tied together in the future to develop a more comprehensive canyon-wide parking plan.

#### Canyon Wide Improvement Strategies

- Do Nothing
- Restrict ADT in canyons
- Prohibit parking improvements everywhere to restrict access to canyons
- Prohibit parking improvements in some areas to control access
- Prohibit parking in all undesignated/unimproved areas
- Canyon parking fee for all areas except resorts
- Annual canyons parking pass (does not apply to resorts)
- Improve parking areas to control availability
- Expand transit service
- Advance turnout signage for all improved areas
- Shift demand from high-use areas to underutilized attractions
- More visible trailhead signage
- Advanced turnout signage for lesser known sites
- Parking fees for high use areas
- Provide trail and parking info at Park-n-Rides and transit stops
- Utilize electronic kiosks for trail and parking info
- Implement parking detection technology and parking apps (ITS)
- Expand interpretive/destination signage
- Provide uphill bike lane to minimize conflicts with shoulder parking
- Expanded rest facilities
- Open and plow lots now closed in winter
- Provide designated carpool areas
- Year round rest facility access
- Implement summer gate closures to restrict access

#### Focus Area Improvement Strategies

- At-grade road re-alignment to create space for parking
- Road re-alignment using structures to create space/facilitate connections
- Strategic improvement of pullouts and shoulders
- Pave/stripe shoulder parking



- Pave/stripe parallel parking
- Improve/stripe parking lots
- Grade-separated pedestrian crossings
- Expand parking lots
- Reconfigure parking lot
- Expand Park-n-Ride Lots
- New parking lots
- Use retaining walls to expand parking areas
- Provide new transit stops
- Advance turnout signage
- At-grade pedestrian crossings with advanced warning/flashers
- More visible trailhead signage
- Advanced turnout signage for lesser known sites
- Consolidate pedestrian crossing locations
- Provide pedestrian connections between dispersed parking locations
- Provide new parking and short trail connections to existing trail systems
- One way traffic circulation in parking lots
- Acceleration, deceleration, and turn lanes for major improved parking areas
- Provide turnaround areas in lots for transit/fire/patrons
- Lots for climbing access including rest facilities
- Expanded rest facilities
- Open and plow lots now closed in winter
- Add lanes for vehicle storage during canyon closures
- Provide parking that accommodates trailers

As with the guiding principles, it is important to note that these strategies were not all unanimously received by members of the Steering Committee as being universally acceptable for application throughout the canyons. It is also important to note, however, that no member of the steering committee was willing to remove any of the strategies from this list based on concerns or objections to potential application problems at specific sites, or even based on application difficulties within the canyons as a whole. Therefore, they comprise a list of strategies that each member of the Steering Committee was at least willing to consider as a potential part of the solution to parking within the canyons.

### **Focus Area Improvement Recommendations**

In developing improvement recommendations, Avenue considered how the goals, the guiding principles, and the improvement strategies could be applied to solve the parking problems at each of the focus areas. These



recommendations have been compiled into single-page summaries (see attached) that describe the proposed improvements in general terms. They outline the goals of each improvement; provide rationale for the various components of the recommendation; provide pertinent facts regarding existing supply and demand; offer numerical recommendations for reconfiguring parking; summarize the changes that the recommendations would provide; provide planning level cost estimates for the recommended improvements; and offer additional supplemental improvement recommendations for consideration.

By design, the single-page summaries do not offer a graphical depiction of the location or configuration of any recommended parking improvements. Instead, they are intended to engage the parking problems on a numerical and conceptual level without the distraction of design bias. The hope is that this approach will allow the recommendations to more easily gather consensus and help fund improvement projects that will determine a more precise design and more detailed cost estimate at the appropriate time.

In many of the focus areas, the overall shortage of available parking capacity is not as much of a problem as where that parking is distributed relative to demand. Informal parking (unpaved shoulders and pullout parking) is distributed lightly and fairly evenly throughout the entire canyon, while the demand for parking is clustered very close to a few high-demand locations. These high-demand locations, or “hot spots”, typically have formal parking areas that are insufficiently small to meet the current demand. Once formal parking areas are full, vehicles spill into informal parking areas where they often create safety hazards and damage environmental resources.

Informal parking has sprawling boundaries that are difficult to control or enforce. It encourages unsafe pedestrian highway crossings, places pedestrians and bicyclists closer to highway traffic, and harms environmental resources near the roadway. Consequently, a strategy adopted at many of the focus areas has been to restrict informal parking and to pave/stripe additional formal parking instead. This provides formal parking that better serves demand while reducing unsafe and environmentally harmful informal parking. It allows for better parking control and enforcement, limits the number of users which preserves the experience of the canyons, and provides no net parking increase within the canyon.

One concern with this strategy is the possibility that expanding formal parking on Forest Lands may not be consistent with the USFS Forest Plan (although there is some latitude for expanding formal parking on Forest lands under certain conditions and for certain goals including transit and environmental protection). Consequently, it may require an amendment of the Forest Plan for some aspects of this strategy to move forward. While recognizing the potential conflict with the Forest Plan, the study team still felt that recommendations to expand some trailhead lots were appropriate given the future uncertainty of year round transit in both canyons combined with the heavy public demand at these locations. In the near-term at least, an alternative strategy that would have restricted shoulder parking without providing additional capacity at high demand locations seemed an unnecessary public provocation, especially given the near-term and long-term uncertainty regarding year round transit alternatives that would provide alternative access modes.

The Steering Committee members reviewed all of the recommendations and provided both verbal and written comments. While this process did not result in unanimous agreement with all recommendations, it did demonstrate a broad consensus regarding most of the recommendations and a willingness to move forward so long as the potential conflicts were acknowledged. The only notable point of significant potential conflict (expanding formal parking on Forest Lands) has already been discussed in some detail.



### **Planning Level Cost Estimates**

Avenue developed planning level cost estimates based on construction costs provided by UTA. These costs were validated with data from other nationwide parking studies to develop total costs per parking stall for at-grade parking lots, paved pullouts, and paved shoulders. These costs included only the construction costs for typical parking features, and did not include land costs (unless noted otherwise on the summary), design costs, environmental costs, or costs for features that would not normally be included in typical surface parking facilities. Where the recommendations required such features, they have been accounted for in specific line items within the planning level cost estimates.

### **Implementation**

As described earlier, lead agencies have been identified for every recommendation location, with an attempt made to align lead agency responsibility with jurisdictional authority for each of the focus areas affected by the recommendations. This means that lead agencies have the ability to immediately move forward with the recommendations that they find appropriate and to initiate necessary processes to secure funding and to implement those recommendations. Agencies with the motivation and resources to implement specific recommendations will thus have the immediate opportunity to move forward with the comfort of working within a framework that compliments the efforts of others, fosters partnering, and guides the improvement of parking within the canyons as a whole.

# Canyons Parking Study

recommendation focus areas

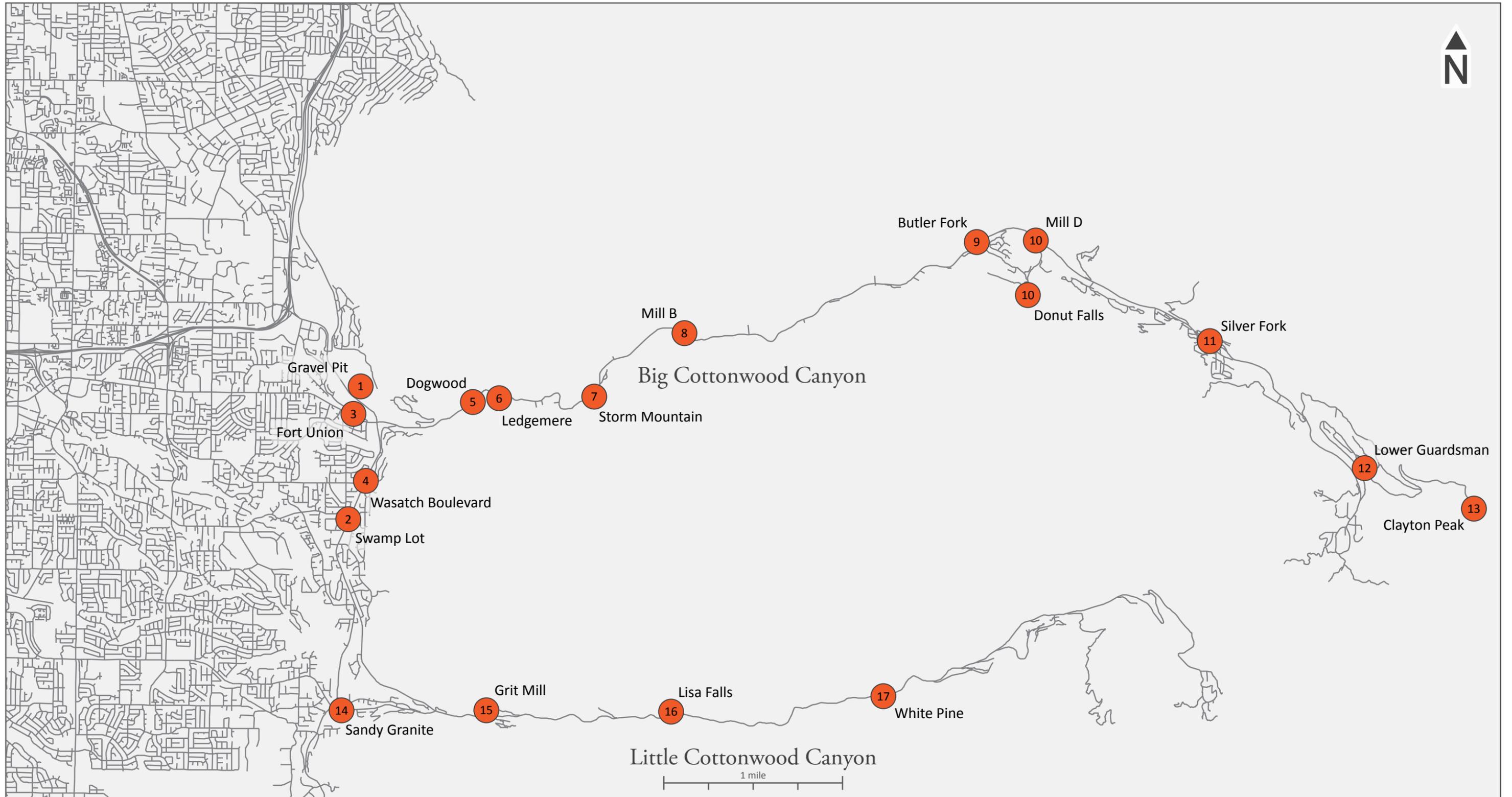


Figure 1 - Recommendation Focus Areas

# 1. Gravel Pit Transit & Visitor Center

# Cottonwood Heights/UTA

Near-Term Improvement (with Long-Term considerations)

Mouth of the Canyons

## I. Improvement Recommendations

**Goal:** Improve parking capacity at the mouth of the canyons and reduce the number of trips up the canyons by constructing a visitor center with parking, transit, and way-finding accommodations.

**Recommendations:** **Construct a new Park-N-Ride lot at the Gravel Pit site** (east of Wasatch Boulevard and north of Fort Union) to accommodate existing overflow demand at the mouth of the canyons, to replace existing Big Cottonwood Park-N-Ride (BCPR) lot, and to provide future capacity for increases in transit and carpooling. **Investigate public/private partnerships** for dining, retail, office, lodging, or recreation uses that will attract demand and create a sense of destination. **Discontinue bus service at BCPR** to focus activity on the transit and visitor center. **Provide year-round transit** at headways matching demand (i.e. shorter headways in morning and evening) in an effort to reduce canyons traffic congestion and parking demand.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Park-N-Ride Parking Lot	--	--	0	500	Construct new parking lot
2) Big Cottonwood Park-N-Ride	--	106	--	--	Shown for comparison only
3) Mouth of Canyons Overflow	--	205	--	--	Shown for comparison only
Total	--	311	0	500	

## III. Improvement Summary & Planning Level Cost Estimate<sup>2</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	--	0	500	+ 500	\$ 3,119,000
Land Costs (for 5 to 6 acre site)	--	--	--	--	\$ 500,000
Roadway Improvements (i.e. signal)	--	--	--	--	\$ 1,500,000
Site Amenities	--	--	--	--	\$ 20,000
First Right of Refusal for Gravel Pit	--	--	--	--	\$ 100,000
Total	--	0	500	500	\$ 5,239,000

## IV. Additional Improvement Strategies

### Parking

- Design site to accommodate multi-modal transit or other Mountain Transportation Study recommendations
- Construct 500 initial parking spaces while allowing mining operations to continue excavating the rest of the site
- Re-stripe Big Cottonwood Park-N-Ride to remove bus bays and increase the number of parking stalls
- Consider negotiation strategies to secure long-term acquisition rights to entire mining parcel
- Re-zone the gravel pit site as high density (Regional Commercial based on zoning for Cottonwood Heights)
- Consider creating a new lot with 70-100 stalls near Old Mill Pond (Cottonwood Heights controlled property)

### Safety & Pedestrian

- Provide acceleration, deceleration, and turn lanes at signal
- Provide pedestrian connections to amenities
- Create turnaround areas for transit, fire, and drop-offs
- Construct new High-T signal at the new Park-N-Ride entry on Wasatch Boulevard

### Amenities & Site Management

- Install advanced signage along nearby roadways for new transit and visitor center
- Provide trail, climbing, parking, and other information at new center and kiosks (potentially electronic)
- Install restrooms, picnic tables, warming stations, and other amenities
- Provide VMS notification of spaces available to help manage parking demand at mouth of canyons

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 2. Swamp Lot (8100 S 3500 E)

## Cottonwood Heights/SLCO/UTA/UDOT

Long-Term Improvement

Mouth of the Canyons

### I. Improvement Recommendations

**Goal:** Improve parking capacity at the mouth of the canyons and reduce the number of trips up the canyons by providing enhanced transit and by either expanding or replacing the existing Swamp Lot with a new Park-N-Ride lot.

#### Option A

**Recommendations:** Remove and reclaim the existing Swamp Lot that is currently used as a Park-N-Ride (the County claims the site has an environmentally sensitive stormwater use, while Cottonwood Heights says there is no 404 delineation and that site drainage has resulted from an outfall design error). Continue using the existing site for stormwater drainage/detention. Construct a new Park-N-Ride at a nearby location to accommodate existing demand and to provide extra capacity for anticipated increases in transit and carpooling demand. A potential site is the undeveloped private land south of the lot and across the street from the Cottonwood Heights Fire Station. Provide year round transit for both canyons at headways matching demand (i.e. shorter headways in morning and evening) in an effort to reduce traffic congestion and parking demand in the canyons.

#### Option B

**Recommendations:** Expand the existing Swamp Lot Park-N-Ride to accommodate existing demand and to provide extra capacity for anticipated increases in parking demand related to transit, carpooling, or re-distribution of existing demand. Install an underground detention system (or remediate the design error claimed by Cottonwood Heights by filling in low-lying areas) to accommodate or remove stormwater drainage at the Swamp Lot site. Provide year round transit for both canyons to better accommodate transit riders.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity			Designate for climbing use
			Existing	Option A	Option B	
1) Park-N-Ride Parking Lot	100%	61	61	160	130	Expand/construct new parking lot

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity			Change in Capacity		Cost Estimate <sup>3</sup>	
		Existing	Option A	Option B	Option A	Option B	Option A	Option B
Parking Lots	61	61	160	130	+ 99	+ 69	\$ 998,000	\$ 430,000
Underground Drainage System	--	--	--	--	--	--	--	\$ 600,000
Land Costs	--	--	--	--	--	--	\$ 200,000	--
Picnic Tables & Restroom	--	--	--	--	--	--	\$ 9,000	\$ 9,000
Total	61	61	160	130	99	69	\$ 1.207 M	\$ 1.039 M

### IV. Additional Improvement Strategies

#### Parking

- Consider designating areas for carpooling and employee parking
- Stripe parking stalls along the wide paved shoulder of Wasatch Boulevard across from Swamp Lot

#### Safety & Pedestrian

- Provide acceleration, deceleration, and turn lanes for the parking lot
- Minimize pedestrian crossing by creating a bus stop, turnaround, and drop off area within the new parking lot

#### Amenities & Site Management

- Install advanced signage along nearby roadways for the Park-N-Ride to increase awareness of this lot
- Consider installing restrooms and picnic tables (or benches)

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

### 3. Fort Union & Neighborhoods

### Cottonwood Heights

Near-Term Improvement (with Long-Term considerations)

Mouth of the Canyons

#### I. Improvement Recommendations

**Goal:** Reduce parking enforcement and safety issues. Increase capacity and minimize overflow of canyon users into residential neighborhoods by refocusing parking capacity to a new lot and formal shoulder parking on Fort Union.

**Recommendations:** Consider adopting the current Cottonwood Heights draft proposal that proposes improvements to increase safety and to minimize the recurring overflow of canyon users into nearby residential neighborhoods. **Construct a new parking lot on Fort Union Boulevard** (at the wide northern shoulder west of Big Cottonwood Canyon Road). **Establish one-way circulation in the new lot** to maximize the number of spaces. **Consider restricting parking in the nearby neighborhoods to "Residents Only"** to further discourage overflow parking. **Construct a continuous sidewalk** (currently discontinuous) along the southern shoulder of Fort Union to support pedestrian connections. **Consider long-term integration of this recommendation with other study**

#### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Fort Union Pullout - North of Road	123%	75	61	115	Expand/construct new parking lot
2) Fort Union Shoulders - South of Road	89%	33	37	45	Pave/stripe shoulder parking
3) Residential Shoulder(s) - Racquet Club Dr	98%	44	45	0	Restrict to residents only
4) Other Overflow Parking in Residential Area	14%	9	65	0	Restrict to residents only
5) Big Cottonwood Canyon Road Shoulders	0%	0	14	0	No parking
Total	73%	161	222	160	

#### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	115	+ 115	\$ 717,000
Pullouts	75	61	0	- 61	\$ -
Shoulders	86	161	45	- 116	\$ 124,000
Retaining Walls & Earthwork	--	--	--	--	\$ 91,000
Crosswalks & Sidewalks	--	--	--	--	\$ 66,000
Total	161	222	160	- 62	\$998,000

#### IV. Additional Improvement Strategies

##### Parking

- Prohibit parking in all informal or unimproved parking areas to control availability
- Pave and stripe the southern shoulder west of Wasatch Boulevard to better control parking in this area

##### Safety & Pedestrian

- Construct stamped concrete crosswalk across Fort Union to parking lot
- Install stamped concrete crosswalk on Fort Union at Big Cottonwood Canyon Road

##### Amenities & Site Management

- Provide year round transit stop with expanded service at headways matching travel demand
- Consider long-term risks and opportunities, including impacts on a future transit hub at the gravel pit site.

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions

2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity

3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 4. Wasatch Boulevard Corridor

### I. Improvement Recommendations

**Goal:** Increase parking capacity at the mouth of the canyons and reduce the number of trips up the canyons by providing enhanced transit/carpooling opportunities. Reduce the burden on law enforcement and improve roadway safety and mobility by eliminating the standing queues during the canyon closures.

**Recommendations:** **Pave and stripe new parking areas with bus stops** on Wasatch Boulevard (5 opportunity locations are identified below) to provide additional capacity for carpooling and transit use. **Provide year round transit for both canyons** at headways matching demand (i.e. shorter headways in morning and evening) in an effort to reduce traffic congestion and parking demand in the canyons. **Modify signals at three Locations on Wasatch Boulevard** (Wasatch & Big Cottonwood, Wasatch & Wasatch, and Wasatch & Little Cottonwood) to divert traffic away from the canyons during canyon closures. **Install U-turns to accommodate type WB-50 vehicles at closure gates** in order to send traffic back down the canyons during closures (this will eliminate the incentive/ability to wait in a standing queue on closure days).

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
<b>5 Opportunity Locations</b>					
1) North of Bengal Blvd - Parking on East	--	--	--	30	Pave/stripe shoulder parking
2) Across from Swamp Lot - Parking on West	--	--	--	20	Pave/stripe shoulder parking
3) South of Little Willow Cir - Parking on East	--	--	--	40	Pave/stripe shoulder parking
4) North of Granite Spring Rd - Parking on West	--	--	--	30	Pave/stripe pullout parking
5) East of Sandy Granite Lot - Parking Both Sides	--	--	--	45	Pave/stripe shoulder parking
<b>Total</b>	--	--	--	165	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	--	--	0	--	\$ -
Pullouts	--	--	30	--	\$ 150,000
Shoulders	--	--	135	--	\$ 371,000
Crosswalks	--	--	--	--	\$ 10,000
Canyons Closure Gates & U-Turns	--	--	--	--	\$ 15,000
Signal Modifications at 3 Signals	--	--	--	--	\$ 60,000
Bike Lanes Between Canyons	--	--	--	--	\$ 10,000
<b>Total</b>	--	--	165	--	\$616,000

### IV. Additional Improvement Strategies

#### Parking

- Prohibit roadside parking in all undesignated or unimproved areas
- Stripe parking stalls in all new parking areas

#### Safety & Pedestrian

- Provide additional bike lanes along Wasatch Boulevard that will connect both canyons
- Consider bus stops on both sides of the road near new parking (if safe pedestrian crossing is feasible)

#### Amenities & Site Management

- Consider installing additional VMS signs to give advanced notice of closures and parking statistics
- Direct drivers to large Park-N-Ride, overflow lots, or other venues until alerted that the canyon is open
- Formalize pull-out and chain-up areas for both canyons
- Consider long-term impacts on other recommendations

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 5. Dogwood Picnic Area & Vicinity

Long-Term Improvement

USFS/UDOT

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and consolidate demand by refocusing parking capacity from unimproved pullouts and shoulders to designated parking areas (picnic lot, improved shoulders).

**Recommendations:** **Pave and stripe new parking near Dogwood** to safely and adequately accommodate the varied and sometimes conflicting demands generated by picnicking, climbing, fishing, and other attractions. **Prohibit parking in unimproved areas** to increase safety and consolidate demand. **Improve shoulder parking on both sides of the road** (for climbing routes that are located north and directly east of the picnic area) to increase safety. **Evaluate a pedestrian crossing zone with advanced signage** to provide safe access from parking on the north of the highway to the picnic area and amenities on the south side of the highway.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Dogwood Picnic Area Lot	26%	8	31	31	Designate picnic area parking
2) East Pullout & Shoulder(s) - North of Road	9%	3	34	10	Pave/stripe shoulders
3) East Pullout & Shoulder(s) - South of Road	70%	7	10	10	Pave/stripe
4) West Shoulders - North of Road	25%	1	4	0	No parking
5) West Pullout & Shoulder(s) - South of Road	6%	1	16	5	Pave/stripe
Total	21%	20	95	56	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	8	31	31	0	\$ -
Pullouts	8	16	0	- 16	\$ -
Shoulders	4	48	25	- 23	\$ 69,000
Pedestrian Bridge to Climbing Areas	--	--	--	--	\$ 15,000
Total	20	95	56	- 39	\$ 84,000

### IV. Additional Improvement Strategies

#### Parking

- Pave and stripe two stalls per picnic area, to be designated as picnic area parking
- Continue fee per vehicle for designated picnic area use

#### Safety & Pedestrian

- Provide safe pedestrian routes between dispersed shoulder parking locations and recreation areas
- Consider constructing a pedestrian bridge over the river to access climbing areas north of picnic site

#### Amenities & Site Management

- Consider installing new signs to designate parking for specific uses including climbing
- Provide a summer transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$.

## 6. Ledgemere Picnic Area & Vicinity

Long-Term Improvement

USFS/UDOT

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and consolidate demand by refocusing parking capacity from unimproved pullouts and shoulders to designated parking areas (picnic lot, improved pullouts and shoulders).

**Recommendations:** **Pave and stripe new parking near Ledgemere** to safely and adequately accommodate the varied and sometimes conflicting demands generated by picnicking, climbing, fishing, and other attractions. **Improve shoulder parking on the north side of the road for climbing routes** that are located north and some distance east of the picnic area. **Prohibit parking in unimproved areas** to increase safety and consolidate demand. **Evaluate a pedestrian crossing zone with advanced signage** to provide safe access from parking on the north of the highway to the picnic area and amenities on the south side of the highway.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Ledgemere Picnic Area Lot	109%	12	11	11	Designate picnic use only
2) North Pullout - North of Road	91%	21	23	40	Pave/stripe (picnic use)
3) East Pullout - North of Road	0%	0	4	0	No parking
4) West Pullout - South of Road	33%	1	3	5	Pave/stripe (picnic use)
5) 2 Pullouts Further East - 1 South, 1 North	14%	1	7	0	No parking
6) 1 Pullout Further West - North of Road	14%	1	7	0	No parking
7) West Shoulder - North of Road	14%	3	21	0	No parking
Total	51%	39	76	56	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	12	11	11	0	\$ -
Pullouts	24	44	40	- 4	\$ 200,000
Shoulders	3	21	5	- 16	\$ 14,000
Total	39	76	56	- 20	\$214,000

### IV. Additional Improvement Strategies

#### Parking

- Pave and stripe pullout directly west of Ledgemere to provide capacity for nearby trails, climbing routes, etc
- Continue fee per vehicle for designated picnic area use

#### Safety & Pedestrian

- Provide safe pedestrian routes between dispersed parking locations and recreation areas
- Prohibit all shoulder parking on north side of road to minimize pedestrian highway crossings

#### Amenities & Site Management

- Install new signs to designate parking for specific uses including climbing
- Provide a summer transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 7. Storm Mountain & Vicinity

Long-Term Improvement

USFS/UDOT

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and improve parking capacity by refocusing capacity from dispersed and unimproved areas to designated pullouts and shoulders strategically located near recreational attractions.

**Recommendations:** **Pave and stripe new parking areas near climbing areas** to better accommodate existing recreation. **Install trailhead and advanced turnout signage** to foster awareness of the climbing routes and trails. **Strategically improve pullouts and shoulders** to provide sufficient capacity for people not paying to use or to park at the picnic site. **Restrict all parking to improved/designated locations** to increase safety. **Evaluate at-grade pedestrian crossings and connections between parking and nearby recreation uses** to increase safety.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Storm Mountain Entry & Picnic Lots	45%	29	65	65	Designated for Storm Mountain
<b>2) Pullout Across From Storm Mountain</b>	<b>120%</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>Pave/stripe shoulder parking</b>
3) East Quartzite Pullout - South of Road	58%	7	12	15	Pave/stripe
4) West Remnants Pullout - South of Road	17%	2	12	15	Pave/stripe
<b>5) North Pullout - East of Remnants</b>	<b>117%</b>	<b>7</b>	<b>6</b>	<b>0</b>	<b>No parking</b>
6) West Pullout & Shoulder(s) - North of Road	18%	4	22	10	Pave/stripe shoulder
7) West Shoulders - South of Road	32%	6	19	10	Pave/stripe shoulder
8) Pullout By Maxfield Dr - North of Road	18%	2	11	10	Pave/stripe
9) Other Storm Mountain Pullouts	0%	0	8	0	No parking
10) Other Storm Mountain Shoulders	0%	0	13	0	No parking
<b>Total</b>	<b>36%</b>	<b>63</b>	<b>173</b>	<b>130</b>	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	29	65	65	0	\$ -
Pullouts	26	64	40	- 24	\$ 200,000
Shoulders	8	44	25	- 19	\$ 69,000
<b>Total</b>	<b>63</b>	<b>173</b>	<b>130</b>	<b>- 43</b>	<b>\$269,000</b>

### IV. Additional Improvement Strategies

#### Parking

- Pave/stripe pullouts and shoulder parking areas as detailed in table above for nearby attractions
- Prohibit roadside parking in all undesignated or unimproved areas
- Continue fee per vehicle for picnic use inside Storm Mountain Picnic Area

#### Safety & Pedestrian

- Create pedestrian trails to connect parking with existing trails systems and rest facilities
- Provide acceleration, deceleration, and turn lanes for entry lot

#### Amenities & Site Management

- Provide a climbing access trail through the picnic site to discourage climbers from crossing river
- Provide summer transit stop within the entry parking lot
- Plow one or both of the Quartzite and Remnants pullouts in the winter for seasonal demand

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 8. Mill B & Vicinity

Long-Term Improvement

USFS/UDOT

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and improve parking capacity by eliminating overflow parking onto unsafe shoulders and by refocusing capacity to new or expanded trailhead lots.

#### Option A

**Recommendations:** **Strategically improve formal trailhead parking lots** to provide sufficient capacity and to eliminate overflow parking onto the narrow shoulders of the winding road. **Relocate trailhead for Mill B North and construct a new trailhead lot** at the bottom of the S-Curve on the north side of the road. **Prohibit shoulder parking within the S-Curve** to increase safety. **Consolidate pedestrian crossings to one zone below the S-Curve** to eliminate dangerous crossings. Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of trailhead parking lots and results in a net increase in parking capacity that may require additional study.

#### Option B

**Recommendations:** **Re-align the road and remove the S-Curve entirely by constructing an elevated structure with down ramps to trailhead and parking areas below the structure.** *This strategy comprehensively addresses the problem of various uses competing for space by removing the roadway from competition for at grade space that could otherwise be utilized for parking, transit, fire lanes and trailheads.* Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of trailhead parking lots and results in a net increase in parking capacity that may require additional study.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy	Peak Demand	Capacity			Notes
			Existing	Option A	Option B	
1) Mill B South - Lot in S-Curve	92%	24	26	35	60	Expand parking lot
2) Mill B South - Trailhead Lot	109%	24	22	60	60	Expand parking lot to southeast
3) Mill B Pullout West of Mill B	133%	4	3	0	0	No parking
4) Shoulders East of Trailhead Lot	110%	22	20	0	0	No parking
5) Shoulders West of Trailhead Lot	100%	32	32	0	0	No parking
6) New Lot North/Bottom of Curve	--	0	0	30	0	Construct new parking lot
<b>Total</b>	<b>103%</b>	<b>106</b>	<b>103</b>	<b>125</b>	<b>120</b>	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity			Change in Capacity		Cost Estimate <sup>3</sup>	
		Existing	Option A	Option B	Option A	Option B	Option A	Option B
Parking Lots	48	48	125	120	+ 77	+ 72	\$ 780,000	\$ 749,000
Pullouts	4	3	0	0	- 3	- 3	\$ -	\$ -
Shoulders	54	52	0	0	- 52	- 52	\$ -	\$ -
Bridge entry/elevated structure	--	--	--	--	--	--	\$ 50,000	\$ 30.0 M
Retaining Walls & Earthwork	--	--	--	--	--	--	\$ 662,000	
Trail Improvements & Restroom	--	--	--	--	--	--	\$ 105,000	\$ 55,000
<b>Total</b>	<b>106</b>	<b>103</b>	<b>125</b>	<b>120</b>	<b>+ 22</b>	<b>+ 17</b>	<b>\$ 1.597 M</b>	<b>\$ 30.80 M</b>

### IV. Additional Improvement Strategies

#### Parking

- Prohibit roadside parking to control access, protect resources, and preserve user experience
- Build retaining walls to expand parking lot within S-Curve and for the new Mill B North lot at the bottom of curve

#### Safety & Pedestrian

- Install advance turnout signage warning, turn lanes, and acceleration/deceleration lanes for major parking areas
- Modify trails to end at parking/crossing locations and improve shoulders near and within the S-Curve for bike use

#### Amenities & Site Management

- Open and plow parking in the winter and consider widening bridge entry for south lot so it can be plowed
- Expand and consider relocating year round restroom facility
- Provide an unobstructed fire lane and an area for drop-offs
- Provide a year round transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 9. Butler Fork

Long-Term Improvement

USFS/UDOT

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Disperse parking demand more evenly throughout the canyon by attracting new users to underutilized sites through capacity and safety improvements and through the implementation of way-finding signage.

**Recommendations:** **Pave, stripe and expand Butler Fork** to better accommodate existing parking needs during both summer and winter, and to divert demand from Mill B and Mill D. **Expand and convert the existing pullout at the trailhead into a parking lot** with one-way circulation to maximize parking. The opportunity for shoulder parking adjacent to the site is limited because of a cliff wall on the north and a steep drop off on the south. Thus, if overflow parking is desired, **improve the pullout to the southeast at the transfer station** to provide additional capacity. **Prohibit parking in unimproved areas** to increase safety and consolidate demand. **Evaluate a pedestrian crossing zone with advanced signage** to provide safe access to trailhead. Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of a trailhead parking lot that may require additional study.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Butler Fork - Trailhead Pullout	133%	20	15	40	Convert to parking lot
2) East Transfer Station Pullout	38%	3	8	30	Expand and improve pullout
3) Other Butler Fork Pullouts	0%	0	10	0	No parking (mostly unsafe)
4) Butler Fork Shoulders	0%	0	35	0	No parking (mostly unsafe)
Total	34%	23	68	70	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	40	+ 40	\$ 250,000
Pullouts	23	33	30	- 3	\$ 150,000
Shoulders	0	35	0	- 35	\$ -
Retaining Walls & Earthwork	--	--	--	--	\$ 161,000
Total	23	68	70	+ 2	\$561,000

### IV. Additional Improvement Strategies

#### Parking

- Project could be phased to split trailhead lot expansion (USFS) from pullout improvements (UDOT)
- Build retaining wall to expand trailhead lot

#### Safety & Pedestrian

- Provide acceleration, deceleration, and turn lanes for improved parking areas
- Evaluate grade-separated pedestrian crossing due to poor at-grade visibility

#### Amenities & Site Management

- Install a more visible trailhead and advanced turnout signs for Butler Fork to divert demand from other areas
- Consider constructing a year round transit stop
- Plow the new parking lot and improved pullout in the winter

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 10. Mill D & Donut Falls

## I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and accommodate existing parking demand by strategically improving parking capacity, consolidating demand, improving access for emergency vehicles, and minimizing overflow onto unimproved shoulders.

### Option A

**Recommendations:** **Restrict shoulder parking near Donut Falls** to improve emergency access by providing an unobstructed fire lane at Donut Falls and to provide additional space for ped/vehicle circulation. **Expand Donut Falls parking lot** to accommodate displaced demand from shoulder parking and consider charging a fee for using the parking lot. **Pave/stripe pullouts and specific shoulders near Mill D** to improve safety, protect watershed, and limit users to preserve user experience. Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of trailhead parking lots that may require additional study.

### Option B

**Recommendations:** **Eliminate Donut Falls parking (lot & shoulders)** to provide an unobstructed fire lane with turnaround for emergency vehicles and to remove most vehicular traffic from the road to Donut Falls (increased pedestrian safety). **Pave, stripe, and expand** parking near Mill D to accommodate additional demand from removal of Donut Falls parking. **Limit parking to designated areas** to control access, preserve user experience, and preserve resources. Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of trailhead parking lots that may require additional study.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity			Notes
			Existing	Option A	Option B	
1) Mill D North Pullout	100%	30	30	40	45	Convert to parking lot
2) Mill D South - Middle Pullout	116%	72	62	80	90	Convert to parking lot
3) Mill D South - East Pullout	100%	18	18	20	30	Expand and improve pullout
4) Mill D South - West Pullout	107%	16	15	20	30	Expand and improve pullout
5) Mill D Shoulders	38%	31	81	30	35	Improved shoulder parking
6) Donut Falls Parking Lot	88%	15	17	40	0	(A) Expand lot/(B) Close lot
7) Donut Falls Shoulders	110%	23	21	0	0	No parking
Total	84%	205	244	230	230	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity			Change in Capacity		Cost Estimate <sup>3</sup>	
		Existing	Option A	Option B	Option A	Option B	Option A	Option B
Parking Lots	15	17	160	135	+ 143	+ 118	\$ 998,000	\$ 842,000
Pullouts	136	125	40	60	- 85	- 65	\$ 200,000	\$ 299,000
Shoulders	54	102	30	35	- 72	- 67	\$ 82,000	\$ 96,000
Retaining Walls & Earthwork	--	--	--	--	--	--	\$ 115,000	\$ 107,000
Picnic Tables & Restroom	--	--	--	--	--	--	\$ 9,000	\$ 9,000
Total	205	244	230	230	- 14	- 14	\$ 1.405 M	\$ 1.354 M

## IV. Additional Improvement Strategies

### Parking

- Establish one-way traffic circulation in parking lots
- Consider building retaining wall to expand parking areas

### Safety & Pedestrian

- Define a pedestrian crossing zone with advanced signage

### Amenities & Site Management

- Open and plow all parking lots (except Donut Falls) in the winter
- Promote alternate trail access to displace demand (i.e. via Spruces for Donut Falls or alternate for Mill D North)
- Expand/relocate restrooms and consider adding picnic tables
- Place advanced signage for nearby trails to divert demand
- Maintain year round restroom facility access
- Provide year round transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 11. Silver Fork Lodge & Vicinity

## I. Improvement Recommendations

**Goal:** Disperse parking demand more evenly throughout the canyon by attracting new users to underutilized sites through capacity/safety improvements and way-finding signage. Promote transit use by providing a year round transit stop with enhanced bus service.

**Recommendations:** **Pave, stripe and expand parking and amenities at Silver Fork** to accommodate the existing demand for the Lodge. **Investigate a public/private partnership with the Lodge** to pave, stripe and expand parking adjacent to the Lodge and across the street for dispersed recreation users that are not Lodge patrons. **Designate public and private parking** within the new parking areas to reduce public parking on private property. **Prohibit parking in unimproved areas** to increase safety and to consolidate demand. **Evaluate a pedestrian crossing zone with advanced signage** to improve safety of highway crossings. **Plan for a year round transit station** to support the existing demand for parking during the summer and winter season. **Install advanced signage for surrounding trails** (i.e. Bear Trap, Willow Heights, Silver Fork) to better disperse recreational demand throughout the canyon.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Lodge Parking Lot	84%	31	37	40	Improve/expand current private lot
<b>2) Pullout North of Lodge</b>	<b>92%</b>	<b>12</b>	<b>13</b>	<b>20</b>	
<b>3) N/S Shoulders - East of Lodge</b>	<b>91%</b>	<b>10</b>	<b>11</b>	<b>5</b>	<b>Improve shoulder on south</b>
<b>4) Pullout near Snow Lane</b>	<b>100%</b>	<b>4</b>	<b>4</b>	<b>5</b>	<b>Combine with improved parking lot</b>
5) Pullout Near Mailboxes	0%	0	5	5	
6) Other Silver Fork Shoulders	20%	8	41	10	Improve shoulder on south near lot
Total	59%	65	111	85	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	31	37	45	+ 8	\$ 281,000
Pullouts	16	22	25	+ 3	\$ 125,000
Shoulders	18	52	15	- 37	\$ 41,000
Total	65	111	85	- 26	\$447,000

## IV. Additional Improvement Strategies

### Parking

- Prohibit parking in all undesignated/unimproved areas to control access, improve safety, protect resources
- Improve pullout and shoulders on the south side of the road near the Lodge

### Safety & Pedestrian

- Provide pedestrian connection between dispersed parking locations, trailheads, and the Lodge
- Provide acceleration, deceleration, and turn lanes for improved parking areas

### Amenities & Site Management

- Consider plowing the parking lot for Silver Fork Lodge in the winter as part of public/private partnership
- Consider requiring Lodge to provide restrooms as part of public/private partnership agreement

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

## 12. Lower Guardsman to Winter Gate

UDOT

Long-Term Improvement

Big Cottonwood Canyon

### I. Improvement Recommendations

**Goal:** Improve safety and protect the environment by providing the necessary parking capacity to discourage vehicles from parking on unsafe shoulders and by minimizing the overflow of Forest Glen residents onto the canyon road.

**Recommendations:** **Pave and stripe shoulder parking between the first corner and the winter gate** to provide sufficient capacity and a safer environment for pedestrians and drivers along the narrow and steep roadway (especially for winter time). **Encourage Forest Glen residents to bury their waterline deeper** along the access road to Forest Glen (UDOT claims the shallow pipe discourages private plowing because residents prefer to leave the snow on the road to insulate the pipe). **Encourage Forest Glen to construct, maintain, and plow an internal lot and turnaround** to reduce overflow parking. **Restrict parking at the pullout across the street from the Forest Glen maintenance sheds** to minimize pedestrian crossing.

### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Pullout - North Side First Corner	94%	16	17	17	No public parking
2) Pullout - South Side First Corner	91%	10	11	0	No parking
3) Plowed Shoulder After First Corner	100%	2	2	0	No parking
4) Pullouts Near Stairs Power Plant	67%	2	3	3	Restrict to adjacent residents only
5) Shoulders Before First Corner	75%	15	20	0	No parking
6) Shoulders After First Corner	88%	35	40	70	Improved shoulder parking
Total	86%	80	93	90	

### III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	0	0	\$ -
Pullouts	28	31	20	- 11	\$ 100,000
Shoulders	52	62	70	+ 8	\$ 192,000
Retaining Walls & Earthwork for Shoulders	--	--	--	--	\$ 47,000
Total	80	93	90	- 3	\$339,000

### IV. Additional Improvement Strategies

#### Parking

- Provide shoulder parking that accommodates trucks with trailers (snowmobiling, mountain biking, ATV, etc)
- Continue to plow the pullout signed for "No Parking" to provide a turnaround for trucks with trailers in the winter

#### Safety & Pedestrian

- Restrict parking until after the first corner to minimize pedestrian activity in this segment
- Consider redesigning southernmost access to Forest Glen in order to improve turning visibility

#### Amenities & Site Management

- Continue plowing shoulder parking in the winter to accommodate seasonal demand
- Maintain year round restroom facility access

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 13. Clayton Peak

Long-Term Improvement

UDOT/SLCO

Big Cottonwood Canyon

## I. Improvement Recommendations

**Goal:** Improve safety, protect the environment, and disperse parking demand more evenly throughout the canyon by attracting new users to underutilized sites through capacity and safety improvements and through the implementation of way-finding signage.

**Recommendations:** **Construct a new parking lot on private land at Clayton Peak** to accommodate the existing overflow of parking onto Guardsman Pass during the summer time. This will improve safety and decrease environmental impacts (watershed) by eliminating the spillover of vehicles onto the narrow dirt shoulders. **Consider re-aligning Guardsman Pass to the north** to improve visibility around the turn, create more space for the parking lot, and to minimize conflict between vehicles, pedestrians, and mountain bikers. **Advertise the new parking area** to divert demand from other locations with high demand during the summer.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Clayton Peak Pullout	127%	33	26	45	Construct new parking lot

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	45	+ 45	\$ 281,000
Pullouts	33	26	0	- 26	\$ -
Shoulders	0	0	0	0	\$ -
Retaining Walls & Earthwork	--	--	--	--	\$ 56,000
Restroom	--	--	--	--	\$ 5,000
Land Costs					\$ 150,000
<b>Total</b>	<b>33</b>	<b>26</b>	<b>45</b>	<b>+ 19</b>	<b>\$492,000</b>

## IV. Additional Improvement Strategies

### Parking

- Prohibit parking in all undesignated/unimproved areas to control access, improve safety, protect resources
- Consider building retaining walls to expand parking area to the south and west

### Safety & Pedestrian

- Create pedestrian trails to connect parking with existing trails systems
- Create turnaround area for transit/fire/patrons

### Amenities & Site Management

- Install trailhead marker and advanced signage

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 14. Sandy Granite

## I. Improvement Recommendations

**Goal:** Increase pedestrian safety and increase capacity to better accommodate existing parking demand by providing new parking capacity that minimizes overflow parking onto unsafe shoulder areas.

**Recommendations:** **Expand parking for Sandy Granite** to address unsafe spillover onto some unimproved shoulders, to improve pedestrian safety, and to more efficiently utilize the parking lot at the trailhead. **Establish one-way traffic circulation in the parking lot** to allow for additional stalls. **Pave and stripe the nearby pullout for Salt Lake County's Gilbert Geologic View Park and the shoulders directly to the east of the trailhead lot** to provide overflow capacity. **Provide pedestrian crossings and walking paths** to connect the overflow supply to the trailhead. **Prohibit parking in unimproved areas** to increase safety (bikes and pedestrians) and to consolidate demand.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Sandy Granite - Trailhead Lot	106%	34	32	36	Improve parking lot
2) North Shoulder - East of Trailhead Lot	20%	4	20	0	No parking
2) South Shoulder - East of Trailhead Lot	48%	12	25	20	Improved shoulder parking
3) Geologic View Park Pullout	3%	1	31	40	Convert to parking lot
4) South Shoulder Across From Geologic Park	0%	0	18	0	No parking
Total	40%	51	126	96	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	34	32	76	+ 44	\$ 274,000
Pullouts	1	31	0	- 31	\$ -
Shoulders	16	63	20	- 43	\$ 55,000
Retaining Walls & Earthwork	--	--	--	--	\$ 268,000
Crosswalks & Sidewalks	--	--	--	--	\$ 250,000
Total	51	126	96	- 30	\$847,000

## IV. Additional Improvement Strategies

### Parking

- Establish one-way traffic circulation in improved trailhead lot with new egress on the east
- Consider restriping some of the parallel spaces as angled parking spaces

### Safety & Pedestrian

- Prohibit parking on the north shoulder to the east of trailhead lot to minimize pedestrian crossings
- Improve crosswalks at the intersection of Wasatch Boulevard with Little Cottonwood Road

### Amenities & Site Management

- Maintain the existing restroom facility year round
- Provide a year round transit stop
- Install signage in main lot that identifies overflow parking areas

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 15. Grit Mill & Vicinity

Long-Term Improvement

UDOT/USFS

Little Cottonwood Canyon

## I. Improvement Recommendations

**Goal:** Reduce traffic and parking at other locations and disperse parking demand more evenly throughout the canyon by attracting new users to underutilized sites through capacity and safety improvements and through the implementation of way-finding signage. **Recommendations:** **Develop Grit Mill as a new destination** in Little Cottonwood Canyon by creating a historic monument, parking lot, trailhead, and transit stop. *Grit Mill is also proposed as a new recreational site in UDOT's Cottonwood Canyons Corridor Management Plan (CMP).* **Construct a parking lot at the old Grit Mill site and improve pullout and shoulder parking across the street** to accommodate dispersed demand. **Consider including additional amenities** to accommodate recreation users. **Provide signage and trail access** to the Little Cottonwood Trail on the south and signage for nearby climbing routes.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Pullout at Grit Mill	50%	2	4	35	Convert to parking lot
2) Pullout across from Grit Mill	0%	0	2	5	Convert to shoulder parking
3) North Shoulder - East of Grit Mill	0%	0	13	5	Improved shoulder parking
4) North Shoulder - West of Grit Mill	5%	2	37	5	Improved shoulder parking
5) South Shoulder - West of Grit Mill	13%	2	16	10	Improved shoulder parking
<b>Total</b>	<b>8%</b>	<b>6</b>	<b>72</b>	<b>60</b>	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	35	+ 35	\$ 218,000
Pullouts	2	6	0	- 6	\$ -
Shoulders	4	66	25	- 41	\$ 69,000
Picnic Tables, Restroom, & Other Amenities	--	--	--	--	\$ 12,000
Demolition & Removal	--	--	--	--	\$ 50,000
<b>Total</b>	<b>6</b>	<b>72</b>	<b>60</b>	<b>- 12</b>	<b>\$349,000</b>

## IV. Additional Improvement Strategies

### Parking

- Demolish the Grit Mill building and create a historic record or monument as noted in the CMP
- Prohibit parking in unimproved areas to increase safety (bikes and pedestrians) and to consolidate demand.

### Safety & Pedestrian

- Evaluate acceleration, deceleration, and turn lanes for the proposed Grit Mill recreational site
- Evaluate a pedestrian crossing zone with advanced signage to improve safety of highway crossings

### Amenities & Site Management

- Create pedestrian trails to connect parking with existing trails systems and climbing routes
- Install trailhead and advanced turnout signage
- Advertise this site to divert demand from higher use locations such as Gate Buttress and White Pine
- Consider installing restroom facilities

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 16. Lisa Falls & Vicinity

Long-Term Improvement

USFS/UDOT

Little Cottonwood Canyon

## I. Improvement Recommendations

**Goal:** Disperse parking demand more evenly throughout the canyon by attracting new users to underutilized sites through capacity and safety improvements and through the implementation of way-finding signage.

**Recommendations:** **Develop Lisa Falls as an improved attraction** to potentially divert demand from higher use areas (i.e. Temple Quarry, Gate Butte). **Expand and improve pullout for Lisa Falls and pullout for Little Cottonwood Trail** to support recreation in the area. **Prohibit parking in unimproved areas** to increase safety and consolidate demand. **Install trailhead and advanced turnout signage** to foster awareness of the surrounding trails and climbing routes. **Plow one or both pullouts in the winter and maintain a restroom facility** to support year round access. **Evaluate an at-grade pedestrian crossing with warning/flashers between the pullouts** for safer crossing since the site is located near a sharp bend in the road.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Lisa Falls - North Pullout	90%	9	10	20	Expand, pave and stripe
2) Cottonwood - South Pullout	71%	5	7	20	Expand, pave and stripe
3) Pullout Further West - South of Road	38%	3	8	5	Convert to paved shoulder parking
4) West Shoulders - North & South of Road	0%	0	21	20	Pave/stripe shoulder parking
Total	37%	17	46	65	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	0	0	0	0	\$ -
Pullouts	17	25	40	+ 15	\$ 200,000
Shoulders	0	21	25	+ 4	\$ 69,000
Retaining Walls & Earthwork	--	--	--	--	\$ 144,000
Restrooms	--	--	--	--	\$ 5,000
Total	17	46	65	+ 19	\$418,000

## IV. Additional Improvement Strategies

### Parking

- Establish one-way traffic circulation in improved pullouts
- Improve shoulders near the site (likely to the west)

### Safety & Pedestrian

- Provide acceleration, deceleration, and turn lanes for major improved parking areas
- Install advance turnout signage warning for major parking areas

### Amenities & Site Management

- Create pedestrian trails to connect parking with existing trails systems and climbing
- Provide year round transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# 17. White Pine & Vicinity

Long-Term Improvement

USFS/UDOT

Little Cottonwood Canyon

## I. Improvement Recommendations

**Goal:** Increase safety, protect the environment, and better accommodate existing parking demand by strategically improving parking capacity to minimize overflow parking onto unsafe shoulders and to move parked vehicles and pedestrian traffic closer to the trailhead.

**Recommendations:** Expand the existing trailhead parking lot to minimize the number of vehicles parking on the road. Improve the southern shoulders near the entry to the trailhead lot to provide closer and safer pedestrian access. Prohibit shoulder parking on the north side of the road to eliminate the need for pedestrians to cross the road to access the trailhead. Prohibit parking in informal or un-improved locations to control availability and protect environmental resources. Promote use of alternate trails or trail access (i.e. via Snowbird) to displace demand from this area, reduce environmental impacts, and improve the recreational experience. Note: This improvement may be inconsistent with the current USFS Forest Plan because it involves expansion of a trailhead parking lot that may require additional study.

## II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) White Pine - Trailhead Lot	104%	54	52	80	Expand parking lot
2) South Pullout - West of Lot	75%	3	4	5	Convert to shoulder parking
3) South Shoulder - West of Lot	82%	14	17	20	Improved shoulder parking
4) North Shoulder - West of Lot	75%	9	12	0	No parking
5) North Shoulder - East of Lot	23%	7	31	0	No parking
6) South Shoulder - East of Lot	50%	14	28	20	Improved shoulder parking
Total	70%	101	144	125	

## III. Improvement Summary and Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	54	52	80	+ 28	\$ 499,000
Pullouts	3	4	0	- 4	\$ -
Shoulders	44	88	45	- 43	\$ 124,000
Retaining Walls & Earthwork	--	--	--	--	\$ 103,000
Restrooms	--	--	--	--	\$ 5,000
Total	101	144	125	- 19	\$731,000

## IV. Additional Improvement Strategies

### Parking

- Pave and stripe shoulders south of the road near the trailhead parking lot
- Construct retaining walls to expand parking areas

### Safety & Pedestrian

- Provide acceleration, deceleration, and turn lanes for the parking lot
- Provide pedestrian connection between dispersed parking locations

### Amenities & Site Management

- Continue to plow the parking lot in the winter
- Maintain year round restroom facility access
- Expand restroom facility
- Provide year round transit stop

Notes: 1. Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions  
 2. Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity  
 3. Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

# Canyons Parking Study

## recommendations key

**Page Header:** Includes focus area name, timeframe of improvements, proposed lead agency or agencies, and location in Big Cottonwood, Little Cottonwood, or Mouth of the Canyons.

**Improvement Recommendations:** Describes recommendation goals, major actions to be taken, some justification for that proposed action, and other relevant big picture details.

### X. Focus Area Name

Timeframe of Improvements

#### I. Improvement Recommendations

**Goal:** What is the goal of this improvement recommendation (safety, increase capacity, promote transit, etc.)?  
**Recommendations:** What are the main improvement actions to be taken? What is the justification for the proposed action? What are pertinent big picture details. This section is only intended to address the main improvement concepts, with more nuanced details, considerations, and recommendations to be addressed in Section IV.

### Proposed Lead Agencies

Canyon Location

#### II. Demand / Capacity Comparison<sup>1</sup>

Location	Peak Occupancy <sup>2</sup>	Peak Demand	Capacity		Notes
			Existing	Proposed	
1) Parking Lot #1	120%	30	25	40	Expand parking lot
2) Pullout #1	150%	15	10	25	Convert pullout to lot
3) Shoulder #1	100%	10	10	10	Improve shoulder parking
4) Shoulder #2	50%	10	20	0	No parking
5) Shoulder #3	25%	5	20	0	No parking
6) Shoulder #4	50%	5	10	10	Improve shoulder parking
<b>Total</b>	<b>79%</b>	<b>75</b>	<b>95</b>	<b>85</b>	

#### III. Improvement Summary/Planning Level Cost Estimate<sup>3</sup>

Type of Parking / Improvement	Peak Demand	Capacity		Change in Capacity	Cost Estimate <sup>3</sup>
		Existing	Proposed		
Parking Lots	30	25	65	+ 40	\$ 405,000
Pullouts	15	10	0	- 10	\$ -
Shoulders	30	60	20	- 40	\$ 55,000
Retaining Walls & Earthwork	--	--	--	--	\$ 103,000
Restrooms	--	--	--	--	\$ 5,000
<b>Total</b>	<b>75</b>	<b>95</b>	<b>85</b>	<b>- 10</b>	<b>\$568,000</b>

#### IV. Additional Improvement Strategies

**Parking**

- Prohibit parking in informal/unimproved areas
- Expand the paved trailhead parking lot
- Pave and stripe shoulders south of the road
- Prohibit all shoulder parking on north side of road
- Construct retaining walls to expand parking areas
- Project could be phased

**Safety & Pedestrian**

- Consider constructing acceleration, deceleration, and turn lanes for the parking lot entry
- Restrict all parking on the north shoulder
- Provide a safe pedestrian connection between dispersed parking locations (shoulders) and the trailhead.

**Amenities & Site Management**

- Provide year round transit
- Plow the parking lot in the winter
- Promote alternate trail access
- Expand restroom facility
- Maintain year round restroom facility access

**Notes:**

- Demand and capacity comparison based on peak seasonal (summer or winter) parking conditions
- Occupancy exceeding 100% denotes aggressive and potentially unsafe parking in an area where demand is greater than capacity
- Planning level estimate based solely on construction cost of parking spaces (unless noted). Does not consider operational, maintenance, or acquisition cost and is based on data from UTA, UDOT, nationwide parking costs, and other sources in 2012 \$\$.

**Demand/Capacity Comparison:** Shows current peak occupancy as % of existing capacity, compares location-specific peak demands and existing/proposed capacities with notes. Highlighted locations are greater than 80% of capacity.

**Improvement Summary:** Compares peak demand, existing capacity, and proposed capacity by parking type (lot, pull-out, or shoulder). It calculates planning level costs based on # of spaces per parking type and other factors as noted.

**Additional Improvement Strategies:** Provides lists of more refined recommendations for consideration during design including parking infrastructure, safety, pedestrians, bikes, amenities, site management and maintenance.

**Notes:** Details key assumptions used in preparing these recommendations, as they apply to this sheet.

Figure 2 - Recommendations Key

## Planning Level Cost Estimates - Assumptions:

**Sample Cost for Parking Spaces** - Costs below are from previously built parking projects and were used to estimate the Total Cost per Parking Space used in Canyons Parking Study. The Adjusted Cost below was calculated by applying an inflation rate of 4 percent per year to the original construction costs.

Source	Cost	Year of Estimate	Adjusted Cost with Inflation*
<i>Example Construction Costs</i>			
UTA - Springville and Pason Park-N-Ride projects	\$ 6,300	2012	\$ 6,300
UTA - Mid Jordan Line	\$ 7,200	2012	\$ 7,200
Victoria Transport Policy Institute - Suburban	\$ 3,000	2002	\$ 4,441
Victoria Transport Policy Institute - Urban	\$ 5,000	2002	\$ 7,401
Silicon Valley - Commercial Construction Company Estimate	\$ 5,000	2008	\$ 5,849
<i>Example Costs for land and other development fees (environmental review, ROW, property)</i>			
UTA - Springville and Payson Park-N-Ride projects	\$ 2,800	2012	\$ 2,800
Victoria Transport Policy Institute - Suburban	\$ 1,820	2002	\$ 2,694
*Note: Assumed inflation rate of 4 percent			

**Parking Cost Assumptions** - Costs based on average of costs above

Parking Type	Total Cost per Parking Space used in Canyons Parking Study
Parking Lot	\$ 6,238
Pullout (0.8 Adjustment from VTPI Study based on parking density )	\$ 4,990
Shoulder (0.44 Adjustment from VTPI Study based on parking density )	\$ 2,745

### Other Cost Assumptions

Description	Cost
Retaining Wall (Per Sq Foot)	\$ 85
Earthwork (Per Cubic Yard)	\$ 15
Restroom	\$ 5,000
Picnic Tables (5 Tables)	\$ 4,000