Economic Development Integration at WFRC

Regional Growth Committee

August 2017
The Wasatch Front Regional Council enhances quality of life by developing and implementing visions and plans for a well-functioning multi-modal transportation system, livable communities, a strong economy, and a healthy environment.
THREE KEY STRATEGIES
Integrating Economic Development with Transportation and Land Use

1. ECONOMIC CLUSTERS
Consider the needs of Utah’s Economic Clusters when planning and investing in transportation and community development.
Support Utah’s Strategic Economic Clusters

- Identify Preferred Mode

**ECONOMIC CLUSTERS**

**ROAD and RAIL**
- Financial Services
- Energy & Natural Resources
- Aerospace & Defense
- Outdoor Products

**TRANSIT and ACTIVE TRANSPORTATION**
- Software Development & IT
- Life Sciences
Support Utah’s Strategic Economic Clusters

- Identify Preferred Mode
- Identify Subset of Strategic Clusters
Support Utah’s Strategic Economic Clusters

☑ Identify Preferred Mode
☑ Identify Subset of Strategic Clusters
☐ Align with Transportation
Aid Cluster-Based Workforce Access

ECONOMIC CLUSTERS

Software Development & IT Cluster
Aid Cluster-Based Workforce Access

- Support projects that provide workforce access to cluster-based employment centers
- Assess # of households that can be accessed

### ECONOMIC CLUSTERS

**Software Development & IT Cluster**

<table>
<thead>
<tr>
<th># of Households an Employer can Reach</th>
<th>Very few</th>
<th>Few – 1,000</th>
<th>1,001 – 5,000</th>
<th>5,001 – 10,000</th>
<th>10,001 – 20,000</th>
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</table>
Reduce Freight-Based Travel Time
Reduce Freight-Based Travel

Time

- Assess regional freight center connections
- Assess dock-to-dock travel times
Economic Development Integration at WFRC

Regional Growth Committee
August 2017

LaNiece Davenport
801-363-4250 x1136  |  ldavenport@wfrc.org
RTP And Amendment Process Overview

• RTP is updated every four years
  – Recently adopted May 2015

• Periodic adjustments are needed between adoption cycles

• WFRC’s RTP amendment process
  – Financial constraints
  – Public review and input
  – Modeling and Air quality conformity

• Proposed requests reviewed annually beginning in March
RTP And Amendment Process Overview

REGIONAL TRANSPORTATION PLAN AMENDMENT PROCESS

1. Receive and WFRC Staff Review of Request

2. WFRC Staff Determines Level of Amendment

   - Level 1: Staff Modification
     - WFRC Executive Director Approval per adopted procedure

   - Level 2: Board Modification For Non-Regionally Significant Projects
     - TAC Review and Recommendation to RGC
     - RGC Review and Release for Public Comment

   - Level 3: Full Amendment For Regionally Significant Projects
     - Air Quality Conformity Determination
RTP And Amendment Process Overview

1. Notification to County COG
2. 30-day Public Comment Period
3. WFRC Staff Review of Comments and Recommendation
4. Are there Regionally Significant Changes from the Comment Period?
   - Yes: RGC Review Staff Recommendation for Modification and New Public Comment Period
   - No: RGC Review Staff Recommendation for WFRC Approval and Website Update
5. WFRC Review and Approval
Technical Considerations for Future Amendments

Why Technical Considerations?

• Will provide additional information to inform decisions
• Tied to the WC2050 Goals and the RTP evaluation and phasing criteria
• Considerations will be reviewed by UDOT, UTA, RGC TAC, and RGC in September and October

• Examples of Technical Considerations:
  – Safety
  – Connection to Centers
  – Multimodal Elements
Amendment #4 Overview

- 17 total requests for approximately $150 million
- Projects guided by State requirements
  - Ten seeking Corridor Preservation Funds. (~$35 million)
  - One seeking Weber County-administered sales tax revenue. (~$5 million)
- Major capacity projects
  - Three could utilize funding from the WFRC-administered Surface Transportation Program (STP) funds. (~$24 million)
  - Three UDOT projects could be financed through the Transportation Investment Fund (TIF). (~$88 million)
- For information only
  - Two additional UDOT projects may also be funded with the TIF. Neither requires amendment into the 2015-2040 RTP; both are included for information only.
Projects Guided by State Requirements for Inclusion in the RTP
Local funding

Corridor Preservation Requests
1. Operational Improvements on 6000 West – Herriman City
2. Operational Improvements on 6400 West – Herriman City
3. Operational Improvements and New Construction on 7300 West – Herriman City
4. Widening of Riverfront Parkway – South Jordan
5. Operational Improvements on 2700 West – South Jordan
6. Operational Improvements on Bengal Blvd. – Cottonwood Heights
7. Widening of Fort Union Blvd. – Cottonwood Heights
8. Widening of Vine Street – Murray
9. New Construction of Depot Street – Clearfield
10. Operational Improvements on 8000 West - Salt Lake County

Weber County Sales Tax
11. Operational Improvements on 1200 West – Marriot-Slaterville
Request: Herriman City

Scope:
• Operational Improvement on 6000 West from Herriman Parkway to Herriman Main Street.
• New project into Phase 2.

Benefits: Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

Cost: $2.5 Million

Funding Source: Corridor Preservation Funds and Herriman City Funding
6400 West – Herriman City

Request: Herriman City

Scope:
• Operational Improvement on 6400 West from Herriman Main Street to 13400 South.
• New project into Phase 1.

Benefits:
• Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

Cost: $1.9 Million

Funding Source: Corridor Preservation Fund and Developer Funding
7300 West – Herriman City

Request: Herriman City

Scope:
- Operational improvements on 7300 West from Herriman Main Street to 14000 South and new construction from 14000 South to Rose Canyon Road.
- New project into Phase 3.

Benefits: Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

Cost: $4.7 Million

Funding Source: Corridor Preservation Fund
Herriman City Funding
Riverfront Parkway – South Jordan City

Request: South Jordan City

Scope:
• Widening of Riverfront Parkway from 11050 South to 11400 South.
• From three to five lanes.
• New project into Phase 1.

Benefits:
• Provides a consistent cross section to 11400 South.
• Provide better traffic flow and addresses increased traffic volumes along Riverfront Parkway.

Cost: $1.8 Million

Funding Source: Corridor Preservation Fund and Surface Transportation Program Fund
2700 West – South Jordan City

Request:  South Jordan City

Scope:
• Operational improvements on 2700 West from 9800 South to 11400 South.
• Widening to allow for a center turn lane.
• New project into Phase 1.

Benefits:
• Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

Cost:  $4 Million

Funding Source: Corridor Preservation Fund
Bengal Boulevard – Cottonwood Heights

Request:

Scope:
• Operational improvements on Bengal Boulevard from Highland Drive to 2325 East.
• New project into Phase 1.

Benefits:
• Roundabout on 2300 East and 2325 East.
• Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.
• Improve pedestrian near the school.

Cost: $2.655 Million

Funding Source: Corridor Preservation Fund
Fort Union Boulevard – Cottonwood Heights

Request:

Scope:
• Widening of Fort Union Boulevard from 3000 East to Wasatch Boulevard.
• From two to four lanes.
• New project into Phase 1.

Benefits:
• Provides a consistent cross section on Fort Union to Wasatch Boulevard.
• Provide better traffic flow and addresses increased traffic volumes along Fort Union Boulevard.

Cost: $3.6 Million

Funding Source: Corridor Preservation Fund
Vine Street – Murray City

Request: Murray City

Scope:
• Widening of Vine Street from 900 East to the Van Winkle Expressway.
• Adding center turn lane.
• New project into Phase 1.

Benefits:
• Provides a consistent cross section on Vine Street.
• Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

Cost: $10.0 Million

Funding Source: Corridor Preservation Fund
Request: Clearfield City

Scope:
• Extension of Depot Street from 700 South to the Clearfield FrontRunner Station (~1250 South).
• Three lane facility.
• New project into Phase 1.
• Major collector.

Benefits:
• Improved street connectivity.
• Better connection to FrontRunner Station.
• Will serve a planned major economic development project creating hundreds of new jobs.

Cost: $2 Million

Funding Source: Corridor Preservation Fund and Developer Funding
8000 West – Salt Lake County

Request: Salt Lake County

Scope:
• Operational Improvements on 8000 West from SR-201 to 3100 South.
• New project in Phase 1.

Benefits:
• Realignment of the intersection at 2700 South will improve both safety and traffic congestion.
• With help improve local street connectivity.

Total Cost: $2 Million

Funding Source: Corridor Preservation Fund
**1200 West – City of Marriott-Slaterville**

**Request:** City of Marriott-Slaterville

**Scope:**
- Operational improvements on 1200 West from 1200 South to 2700 North.
- Extend the current Phase 1 project.

**Benefits:**
- Provide better traffic flow along 1200 West
- Completion of road cross section including curb, gutter, sidewalks, and storm drain improvements.

**Cost:** $5.6 Million

**Funding Source:** Weber County Sales Tax Funding
Major Capacity Projects
Major Capacity Overview

Surface Transportation Fund and Transportation Investment Fund
12. Widening on Lone Peak Parkway – Draper City
13. New I-215 Frontage Road – Taylorsville
14. Widening of Main Street – Kaysville and Layton
15. New Bangerter Highway Interchanges at 4700 South – UDOT
16. New Bangerter Highway Interchanges at 13400 South – UDOT
17. Widening of Highway 89 in Davis County – UDOT

For Information Only
18. I-15 Braded Ramp in Salt Lake County – UDOT
19. SR-201 Extension in Tooele County – UDOT
Lone Peak Parkway – Draper City

Request: Draper City

Scope:
• Widening of Lone Peak Parkway from 12300 South to 12650 South.
• From three to five lanes.
• Existing Project move from Phase 2 to Phase 1.

Benefits:
• Realignment and providing a consistent cross section to Bangerter Hwy.
• Provide better traffic flow along Lone Peak Parkway.
• Connection to the FrontRunner Station.

Total Cost: $6 Million

Funding Source: Surface Transportation Program Fund and Corridor Preservation Fund

Technical Considerations:
• Safety: 0.0
• Connection to Centers: Draper Station Community
• Multimodal Elements: Priority Bike Route
**Request:** Taylorsville City and the Utah Department of Transportation

**Scope:**
- New road construction from 4100 South to 4700 South.
- Move from Phase 2 to Phase 1.

**Benefits:**
- Provide congestion and safety improvements on 4700 South and 2700 West.
- Provide improved access to development between 2700 West and I-215.

**Total Cost:** $14.5 Million

**Funding Source:** Surface Transportation Program Fund and other funding sources

**Technical Considerations:**
- Safety: NA (No data for non-existing roads)
- Connection to Centers: None
- Multimodal Elements: None
Main Street – Kaysville and Layton City

Request:  Kaysville City

Scope:
• Widen from 300 West to Layton Parkway.
• From three to five lanes.
• New project into Phase 1.

Benefits:
• Provides a consistent cross section from Main Street to Layton Parkway.
• Provide better traffic flow and addresses increased traffic volumes along Main Street.

Cost:  $3.1 Million

Funding Source:  Surface Transportation Program Fund

Technical Considerations:
• Safety:  4.6
• Connection to Centers: Boulevard Community
• Multimodal Elements: Priority Bike Route and Phase 2 Transit Project
Bangerter Hwy Interchange at 4700 S - UDOT

Request: Utah Department of Transportation

Scope:
- Upgrade current intersection at Bangerter Highway and 4700 South to an interchange.
- Move from Unfunded to Phase 1.

Benefits:
- Will provide a continuous freeway cross section from I-215 to 4700 South.
- Will help with East / West traffic flow.
- Improve Safety.

Cost: $44.3 Million

Funding Source: Transportation Investment Fund

Technical Considerations:
- Safety: 21% to 35% reduction in accidents
- Connection to Centers: None
- Multimodal Elements: Priority Bike Route and Phase 2 Transit Project on 4700 South
Bangerter Hwy Interchange at 13400 S - UDOT

Request: Utah Department of Transportation

Scope:
• Upgrade current intersection at Bangerter Highway and 13400 South to an interchange.
• Move from Phase 2 to Phase 1.

Benefits:
• Will provide a continuous freeway cross section from I-215 to 4700 South.
• Will help with East / West traffic flow.
• Improve Safety.

Cost: $43.2 Million

Funding Source: Transportation Investment Fund

Technical Considerations:
• Safety: 21% to 35% reduction in accidents
• Connection to Centers: Riverton Town Center
• Multimodal Elements: Priority Bike Route on 13400 South
Request: Utah Department of Transportation

Scope:
• Widening of US Highway 89 from Antelope Drive to I-84.
• From four to six lanes.
• Move from Unfunded to Phase 1.

Benefits:
• Improved traffic flow along this major arterial.
• Improved safety.
• Part of the overall plan to upgrade this facility to a north / south freeway.

Cost: Funded

Funding Source: Transportation Investment Funds

Technical Considerations:
• Safety: 4.9
• Connection to Centers: None
• Multimodal Elements: Priority Bike Route on Frontage Roads
I-15 Braided Ramp - UDOT

Request:  Utah Department of Transportation

Scope:
• Not being amended in the WFRC RTP, but will be amended in the Statewide LRP.
• New Construction of a northbound braided ramp on I-15 between I-215 and 9000 South.

Benefits:
• Provide better traffic flow and addresses increased northbound traffic volumes along I-15.
• Relieves congestion at 7200 South and 9000 South interchanges.

Cost:  $130 Million

Funding Source:  Transportation Investment Fund
SR-201 Extension - UDOT

Request: Utah Department of Transportation

Scope:
• Not being amended into the WFRC RTP, but will be amended in the Statewide LRP.
• New Construction extending SR-201 from the SR-201/I-80 connection and SR-36.

Benefits:
• Parallel facility to I-80, allowing for emergency bypass.
• Provide better traffic flow and addresses increased traffic volumes on I-80.

Cost: $100 Million

Funding Source: Transportation Investment Fund
2015-2040 RTP
Recommendation for Approval of Amendment #4

August 17, 2017
The Partnership
Study Limits
The Challenge

LOTS OF PEOPLE
NOT MUCH SPACE
LOTS MORE TRAVEL
The Challenge

WASATCH FRONT POPULATION GROWTH

Counts Included: Box Elder, Davis, Salt Lake, Utah, Weber

Source: Kem C. Gardner Policy Institute, The University of Utah; Utah’s Long-Term Demographic and Economic Projections Summary; Research Brief, July 2017
Planning Differently

I-15 Lanes Needed by 2050 at 7200 South if Widening is the Only Solution Considered
Transportation Goals

- Improve Safety
- Increase Person Throughput
- Improve Travel Time Reliability
- Increase Accessibility to Jobs & Education
- Improve Air Quality
- Improve Economic Outcomes
- Reduce Household Transportation Costs
- Improve Mode Balance
Seat Utilization – 3300 South

A.M. PEAK HOUR (7-8 A.M.)

<table>
<thead>
<tr>
<th>Northbound</th>
<th>Southbound</th>
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<tr>
<td>SEATING CAPACITY</td>
<td>SEATING CAPACITY</td>
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<tr>
<td>Occupied Seats</td>
<td>Occupied Seats</td>
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FrontRunner  | TRAX Blue  | TRAX Red  | Local Bus | I-15  | FrontRunner  | TRAX Blue  | TRAX Red  | Local Bus | I-15  |
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32%* Total Utilization

* Percent of vehicle and transit seats in use

Wasatch Front Central Corridor Study
Seat Utilization – 3300 South

P.M. PEAK HOUR (4-5 P.M.)

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<tr>
<th>Northbound</th>
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<tr>
<td>FrontRunner</td>
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<td>TRAX Blue</td>
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<td>TRAX Red</td>
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<td>Local Bus</td>
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<td>I-15</td>
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SEATING CAPACITY

Occupied Seats

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<th>FrontRunner</th>
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<td>31%*</td>
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Total Utilization

* Percent of vehicle and transit seats in use
Seat Utilization – 3300 South

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<td>35%* Total Utilization</td>
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* Percent of vehicle and transit seats in use
Refined Scenarios
Hybrid Mobility Scenario
Hybrid Mobility Scenario

- **I-15**
  - Expanded collector-distributor system
  - Enhanced variable-pricing on all non-carpool I-15 lanes during rush hours to reduce congestion
  - Barrier-separated lanes exclusively for carpooling and enhanced, premium variable-pricing to help reduce congestion

- **Surface Streets**
  - Improved street connections
  - Driveway consolidation (access management) on select arterials
  - Managed Lanes Networks (includes transit/Express Lanes on arterials)

- **Transit**
  - No-fare transit
  - Double FrontRunner frequency - Double-track and electrify
  - Double bus service - Increase frequency
  - Double TRAX frequency - Extend TRAX stations (longer trains)

- **Active Transportation**
  - Cycle superhighway
  - Buffered bike lanes
  - Extensive active transportation networks

- **Programs**
  - Pay-per-use transportation apps
  - Choice Architecture - Incentive strategy to promote more efficient travel choices (Travel Demand Management (TDM) strategy)
  - Mobility hubs - Regional mixed-use transportation hubs
  - Comprehensive and voluntary TDM strategies

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**Doubles Transit Ridership**
The combination of variable freeway pricing, increased transit frequency and no-fare transit doubles projected 2050 transit ridership in the study area.

**Reduces Future Travel Times**
This combination also produces considerably faster travel times than would exist without managing the transportation network. For example, projected 2050 travel times from Salt Lake City to Lehi decrease by 17 minutes in the I-15 non-carpool lanes and by 13 minutes in the barrier-separated Express Lanes as compared to the study’s Scenario 0, which assumes many of the projects in the 2040 Regional Transportation Plans are built by 2050, but does not include the solutions in the Hybrid Mobility Scenario.
HYBRID MOBILITY SCENARIO MAP

I-15
- Expanded Collector-Distributor System
- Barrier Separated Carpool/Premium Lanes
- Variable-Pricing on All Lanes During Rush Hours
  Managed Lanes Networks*
HYBRID MOBILITY SCENARIO MAP

Surface Streets
- Bike/Ped/Vehicle Overpasses
- Driveway Consolidation on Select Arterials
HYBRID MOBILITY SCENARIO MAP

Transit
- New FrontRunner Stations
- Doubletrack and Electrify FrontRunner
- No-Fare Transit*
- Double Bus Services - Increase Frequency*
- Double TRAX Frequency - Extend TRAX Stations (Longer Trains)*

* = Elements not represented on map, as they encompass the entire study area

The study includes □ Mobility Hubs and ◆ New FrontRunner Stations in Weber, Northern Davis and Utah Counties.
HYBRID MOBILITY SCENARIO MAP

Active Transportation
- Cycle Super Highways
- Buffered Bike Lanes
- East-West Salt Lake County Trails
- First-Last Mile Connections
- Bicycle/Pedestrian Only Overpasses
HYBRID MOBILITY SCENARIO MAP

Programs

- Mobility Hubs
  - Choice Architecture/Comprehensive and Voluntary
  - Travel Demand Management (TDM) Strategies

* = Elements not represented on map, as they encompass the entire study area

The study includes □ Mobility Hubs and ◆ New FrontRunner Stations in Weber, Northern Davis and Utah Counties.
HYBRID MOBILITY SCENARIO MAP

I-15
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Programs
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  Choice Architecture/Comprehensive and Voluntary
  Travel Demand Management (TDM) Strategies*

* = Elements not represented on map, as they encompass the entire study area

The study includes Mobility Hubs and New FrontRunner Stations in Weber, Northern Davis and Utah Counties.
Process and Next Steps

**INITIAL SCENARIOS**
Fall 2015-Spring 2016
Developed and discussed conceptual scenarios
**Stakeholder Workshops**

**REFINED SCENARIOS**
Summer-Fall 2016
Analyzed transportation and economic impacts and fiscal sustainability of scenarios
**Small-Area Meetings**

**HYBRID MOBILITY SOLUTIONS**
End of 2016-Early 2017
Identified Hybrid Mobility Solutions
**Final Report**

**REGIONAL TRANSPORTATION PLAN INTEGRATION**
2017-2019
Integrate solutions from the study into various cycles of the WFRC and MAG 2019-2050 Regional Transportation Plans (RTPs) and the Utah Unified Plan
**Ongoing Public Involvement**

Current Phase
Additional study information available at wfccstudy.org
FUNDING PROGRAMS
FISCAL YEAR 2018
WASATCH FRONT REGIONAL COUNCIL
WFRC Funding Programs

- Wasatch Front Economic Development District
- Community Development Block Grant Program
- Transportation & Land Use Connection Program
- Surface Transportation Program
- Congestion Mitigation Air Quality
- Transportation Alternatives Program
Mission: Support economic development plans, promote long-term economic competitiveness, and attract federal monies in order to implement local plans.

**Expand Employment**
Planning Request
$100,000
Develop strategies to expand employment in Utah’s advanced composites manufacturing industry and supply chain

**Encourage Entrepreneurship**
Construction Request
$2,000,000
Grow creative industries and connect people and organization to space, technology, and opportunity

**Workforce Training**
Workforce Training Request
$614,000
Provide workforce training to disadvantaged youth in the green construction industry
**Mission:** Support economic development plans, promote long-term economic competitiveness, and attract federal monies in order to implement local plans.

### U.S. Economic Development Administration Funding Programs

<table>
<thead>
<tr>
<th>PUBLIC WORKS &amp; ECONOMIC ADJUSTMENT ASSISTANCE</th>
<th>REGIONAL INNOVATION STRATEGIES</th>
<th>LOCAL TECHNICAL ASSISTANCE</th>
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<td>$100,000 - $3,000,000</td>
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<td>• Job Creation</td>
<td>• Innovation Centers</td>
<td>• Economic Development Plans</td>
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<td>• Job Retention</td>
<td>• Entrepreneurial Centers</td>
<td>• Feasibility Studies</td>
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<tr>
<td>• Construction</td>
<td>• Cluster-Based Startups</td>
<td>• Impact Analyses</td>
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<td>• Global Competitiveness</td>
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<td>• Leverage Private Capital</td>
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<td>• Coal Impacted</td>
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<td>• Communities</td>
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<td>• Build Regional Capacity</td>
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Program Purpose: Assist in developing viable urban communities by providing decent housing and a suitable living environment, principally for persons of low and moderate income.

Eligibility: Morgan, Tooele, and Weber Counties
Community Development Block Grant (CDBG)  
Small Cities Program

RECENTLY FUNDED CDBG PROJECTS

- **Rental Assistance**: $33,000
- **Sewer Line Replacement**: $200,000
- **Public Safety Equipment**: $31,000
- **Waterline Replacement**: $250,000
TLC Program Objectives

• Support local governments
• Coordinate land use and regional transportation
• Implement Wasatch Choice growth principles, e.g.
  • Reduce travel demand
  • Increase access to opportunity
  • Create livable communities

Website: http://wfrc.org/tlc
TLC Example Project Types

- Ordinances
- Transportation/Active Transportation Master Plans
- Complete Streets Policies
- First Last Mile Implementation
- Station/Small Area Plans
- Corridor Plans
- Studies (such as market, parking, etc.)
- Visioning
FEDERAL FUNDING PROGRAMS

SURFACE TRANSPORTATION PROGRAM (STP)

CONGESTION MITIGATION/AIR QUALITY (CMAQ)

TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

FEDERAL FUNDING PROGRAMS
Eligible STP Project Types

• Street widening or new construction
• Improve or reconstruct existing streets
• Bridge replacement
• Projects that reduce traffic demand
• Intersection improvements
5600 West – 6200 South to 7000 South
Reconstruct & Widen
CONGESTION MITIGATION/AIR QUALITY (CMAQ)
Eligible CMAQ Project Types

• Projects that improve Air Quality

• Construct or purchase public transportation facilities and equipment

• Commuter bicycle & pedestrian facilities

• Intelligent Transportation Systems (ITS)

• Projects that reduce traffic demand

• Intersection improvements
Construct/Purchase Public Transportation Facilities and Equipment
TRANSPORTATION ALTERNATIVES PROGRAM (TAP)
Eligible TAP Project Types

- Construction, planning, and design
- Pedestrian, bicyclists, & other non-motorized forms of transportation
- Improvements could include:
  - Sidewalks
  - Bicycle infrastructure
  - Traffic calming techniques
  - Lighting and safety-related infrastructure for non-drivers
- Safe Routes to School projects
D&RGW Rail/Trail
WFRC Funding Program Deadlines

We’re Here

Funding Programs Announced

Notice for Letters of Intent Sent

Letters of Intent Due

Applications Due

Projects Recommended

August 2016  September 2016  October 2016  January 2017  Spring 2017
For More Information

Wasatch Front Regional Council

www.wfrc.org

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Utah’s Air Quality

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Division of Air Quality
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## National Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary/Secondary</th>
<th>Averaging Time</th>
<th>Level</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carbon Monoxide (CO)</strong></td>
<td>primary</td>
<td>8 hours</td>
<td>9 ppm</td>
<td>Not to be exceeded more than once per year</td>
</tr>
<tr>
<td></td>
<td>1 hour</td>
<td>35 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lead (Pb)</strong></td>
<td>primary and</td>
<td>Rolling 3 month period</td>
<td>0.15 μg/m³ (1)</td>
<td>Not to be exceeded</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nitrogen Dioxide (NO₂)</strong></td>
<td>primary</td>
<td>1 hour</td>
<td>100 ppb</td>
<td>98th percentile of 1-hour daily maximum concentrations, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>primary and</td>
<td>0.070 ppm (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>1 year</td>
<td>53 ppb (2)</td>
<td>Annual Mean</td>
</tr>
<tr>
<td><strong>Ozone (O₃)</strong></td>
<td>primary and</td>
<td>8 hours</td>
<td>0.070 ppm (3)</td>
<td>Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>1 year</td>
<td>12.0 μg/m³</td>
<td>annual mean, averaged over 3 years</td>
</tr>
<tr>
<td><strong>Particle Pollution (PM)</strong></td>
<td>PM2.5</td>
<td>1 year</td>
<td>15.0 μg/m³</td>
<td>annual mean, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 year</td>
<td>35 μg/m³</td>
<td>98th percentile, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24 hours</td>
<td>150 μg/m³</td>
<td>Not to be exceeded more than once per year on average over 3 years</td>
</tr>
<tr>
<td><strong>PM10</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sulfur Dioxide (SO₂)</strong></td>
<td>primary</td>
<td>1 hour</td>
<td>75 ppb (4)</td>
<td>99th percentile of 1-hour daily maximum concentrations, averaged over 3 years</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>3 hours</td>
<td>0.5 ppm</td>
<td>Not to be exceeded more than once per year</td>
</tr>
</tbody>
</table>

Non-attainment and Maintenance Areas

State of Utah
National Ambient Air Quality Standards
Areas of Non-attainment and Maintenance
(Updated March 2010)

Fine Particulate (PM2.5) Non-attainment

Particulate (PM10) Non-attainment

Sulfur Dioxide (SO2) Non-attainment

Carbon Monoxide (CO) Maintenance

Ozone (O3) Maintenance
PM2.5 3-yr Average of 98th Percentile of 24-hr Concentration

- Standard (65)
- Bountiful
- Tooele #3
- North Provo
- Hurricane
- Ogden #2
- Herriman
- Brigham City
- Logan #4
- Erda
- Magna
- Smithfield
- Hawthorne
- Lindon
- Vernal
- Rose Park
- Spanish Fork


PM2.5 (μg/m³)

0 10 20 30 40 50 60 70 80
3-Year Average 4th Highest 8-hr Ozone Concentration

- New Standard (.075)
- Logan (L4)
- Bountiful (BT & BV)
- Beach (B4)
- Tooele (T3)
- North Provo (NP)
- St George/Santa Clara (SC)
- N Ogden/Harrisville (HV)
- Standard Thru 2006 (.084)
- Smithfield
- Roosevelt (RS)
- Hawthorne (HW)
- Erda
- Highland (HG)
- Hurricane (HC)
- Brigham City (BR)
- Price #2 (P2)
- Cottonwood (CW)
- Herriman
- Vernal (VL)
- Spanish Fork (SF)
- Ogden #2 (O2)

Ozone (ppm)

Year:
- 1993-1995
- 1994-1996
- 1995-1997
- 1996-1998
- 1997-1999
- 2000-2002
- 2001-2003
- 2002-2004
- 2003-2005
- 2004-2006
- 2005-2007
- 2006-2008
- 2007-2009
- 2008-2010
- 2009-2011
- 2011-2013
- 2012-2014
- 2013-2015
- 2014-2016
Days with monitored values above the level of the *current* National Ambient Air Quality Standards combined for PM2.5 and ozone (PM2.5 standard revised in 2006, ozone standard revised in 2015) + pending final quality assurance
Number of Days 8-hr Ozone Daily Max > 0.070 ppm
2000-2017
in Davis County, UT

- Unhealthy for Sensitive Groups (0.071 - 0.085 ppm)
- Unhealthy (0.086 - 0.105 ppm)
- Very Unhealthy (>= 0.106 ppm)
Number of Days 8-hr Ozone Daily Max > 0.070 ppm
2000-2017
in Salt Lake County, UT

Unhealthy for Sensitive Groups (0.071 – 0.085 ppm)
Unhealthy (0.086 – 0.105 ppm)
Very Unhealthy (≥ 0.106 ppm)

Note: Based on ALL sites
Source: U.S. EPA AirData <https://www.epa.gov/air-data>
Generated: August 11, 2017
Serious SIP

• The Salt Lake and Provo PM2.5 nonattainment areas were found to be exceeding the 24-hour health standard as of their attainment date (December 31, 2015) and the EPA has reclassified each of the areas to Serious Non-Attainment.

• The Clean Air Act requires a new SIP for each area. These Serious Area plans are to be “in addition to” the Moderate Area plans Utah has already submitted, but they will essentially build upon what has already been accomplished and require the Best Available Control Measures and Technologies.

https://deq.utah.gov/Pollutants/P/pm/pm25/serious-area-state-implementation-plans/index.htm
Staff Review of Area Recommendations for the 2015 Ozone Standard
SIP Development

- EPA
- Emission Inventory
- Regional Air Quality Modeling
- Air Monitoring
- Control Strategies
- Public Process
- Mobile Sources Inventory/Controls
- Air Quality Board
National Air Quality Standards

Air Monitoring and Chemistry

Computer Models

Inventory of Emissions

Control Strategies

Federal Measures

State Implementation Plan

Industry Controls

Feedback

Continued Air Monitoring

Inspection and Enforcement
National Air Quality Standards

- Air Monitoring and Chemistry
- Computer Models
- Inventory of Emissions

- Industry Controls
- Control Strategies
- Federal Measures

- State Implementation Plan

- Continued Air Monitoring
- Inspection and Enforcement

Feedback
Sources of Air Pollution

- Mobile (on-road vehicles)
- Area (residential, consumer and commercial, and non-road vehicles)
- Point Sources (smoke stack industries)
- Natural Sources (biogenics/dust/fires)

http://www.airquality.utah.gov/Planning/Emission-Inventory/Available_inventory.htm
http://www.epa.gov/ttn/chief/net/2011inventory.html
Wasatch Front Counties: Utah, Salt Lake, Davis and Weber

- Average Winter Day
- $\text{NO}_x$, VOC, $\text{SO}_2$ and Direct $\text{PM}_{2.5}$ (most important contributors)

**2002**
- Large Industry: 13%
- Area: 39%
- Mobile: 48%

**2008**
- Large Industry: 10%
- Area: 34%
- Mobile: 56%

**2014**
- Large Industry: 13%
- Area: 39%
- Mobile: 48%

Tons/Day
- 2002: 471
- 2008: 386
- 2014: 320
Per Capita Emissions (46% reduction)

Utah State-wide Air Emissions
Tons Per Year

- Population
- Emissions
- Rate Per Capita
SLC Air Quality Index (AQI) 1980-2015
Annual average of highest daily AQI for any NAAQS based on the 2016 AQI for each air pollutant

Start of PM10 Monitoring
Start of PM2.5 Monitoring
Total Anthropogenic Emissions

Annual Anthropogenic Emissions

Utah rank 39th

https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data
Per-capita Anthropogenic Emissions

Utah rank 28th

https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data
Total Attributable Deaths

Utah rank 30th
38 deaths per year

Total Air Pollution Death Rate

Air Pollution Deaths per Million
American Thoracic Society

Utah rank 28th
12.5 deaths per million
Winter Particulate (PM$_{2.5}$) Formation

95% of total emissions are gasses, most come from daily business and consumer activities.

A portion of gaseous emissions are converted to particles in the air during temperature inversions.

Direct PM$_{2.5}$ Emissions

- Only 5% start out as particles.

- Commercial/Residential/Agricultural (Area Source Emissions)
- Transportation (Mobile Source Emissions)
- Large Industry (Point Source Emissions)

70% of particles started as gasses
30% were emitted as particles

What we breathe

Utah Division of Air Quality
Winter PM2.5 Formation Detail

Chemical Formation of Secondary Particulate in the Atmosphere

What is measured during Inversions

70% Secondary

organic carbon

ammonium nitrate

ammonium sulfate

30% Primary

elemental carbon

organic carbon

metals, salts, carbonates, etc.

70% Secondary

~4-20% Converts to PM2.5

VOC NOx NH3 SO2 PM2.5

Hydrocarbons (VOC)

Ozone O3

O3

OH

CH3n02

O3

Nitrates N2O5 HNO3

NH4NO3

(NH4)2SO3

H2SO4

OH H2O

H2O2 O2

OH

O3 H2O2 O2

Remains PM2.5

Salt Lake County Emissions (tons/winter day) in 2008

Commercial/Residential/Agriculture (Area)

Transportation (Mobile)

Large Industry (Point)

Utah Division of Air Quality
SL County Area Source Emissions

Download emissions data at:
http://www.deq.utah.gov/Pollutants/P/pm/pm25/dataexplorer/index.htm
Nitrogen Dioxide Pollution Levels
Refinery Emissions Tons Per Year
1994-2014 (55% total reduction)

- Big West Oil, LLC - Big West Oil Refinery
- Chevron Products Co - Salt Lake Refinery
- Holly Corp - HRMC and HEP Woods Cross Operations
- Tesoro Refining & Marketing Company LLC

[Graph showing emissions comparison between 1994 and 2014 for each of the mentioned refineries]
Air Quality Partnerships

Hot Topics

Summer Ozone White Paper

Did you know that's season? Summer tire combined with high harder to see than cause. Read More

TravelWise to Keep Utah Moving

There is a better way to get from here to there, and it starts when you rethink your trip with the TravelWise Tracker. Just input your trip below and we'll show you all the ways to get where you're going, from carpooling and riding transit, to walking, biking, and more.

A Enter and select your location
B Enter and select a destination
Find Your Route

YOUR UTAH, YOUR FUTURE.

Our state's population has doubled in the last thirty years, and we're projected to add another 2.5 million people by 2050. We all love our high quality of life, our beautiful natural surroundings, and our strong economy. To protect these things that we value about living here, we need to establish a vision together for our Utah and our future.

How we grow matters.

Will we have clean air to breathe? Enough water for our needs? Transportation choices that promote a high quality of life? An affordable cost of living, with good housing options for everyone? Open space, including natural lands, agriculture, and recreational options? Quality jobs for all of us? An educated population? Affordable energy supplies that don't damage our air and environment? The answers to all of these questions depend on the choices we make.

Governor Gary Herbert has kicked off the Utah, Your Future effort which will tackle the following issues:
TV
12,448,000
Estimated impressions

OUTDOOR
26,088,928
Estimated impressions

ONLINE
13,566,817
Estimated impressions

RADIO
5,808,000
Estimated impressions

Total Impressions: **61,753,238**
Total Estimated Audience Reach: **99.7 percent**
Total Estimated Average Frequency: **32.1**
Have you changed any of your personal behavior to help improve Utah’s air quality?

Which of the following air quality strategies have you tried in the past two months in order to help improve Utah’s air quality?

- 65% Lowered Thermostat
- 64% Stopped Idling Vehicle
- 38% Carpooled
- 38% Reduced Wood Burning
- 34% Used Public Transit
- 21% Other
- 14% None
Provo Clean Air Toolkit
http://provocleanair.org/
Three Day Forecast and App

- Notify the Public of:
  - Forecast Air Quality Conditions to allow the Public to Plan Activities
  - Public Health Advisories
  - Air Pollution Alert and Action Days
Questions?

www.deq.utah.gov
www.airquality.utah.gov