1.0 | Project Summary Information

1.1 Project Name (35 letters max) Orem 1600 North

1.2 Limits (descriptions should be identifiable. i.e: intersections, place names, landmarks, 35 characters max) State Street to 275 West

1.3 Project Description (summary of project) Currently, 1600 North has dual eastbound left-hand turn lanes onto northbound 400 West and one eastbound travel lane. This project will eliminate one eastbound left-hand turn lane onto northbound 400 West. Additionally, 1600 North will be widened to the south to accommodate an additional eastbound travel lane. Two to three homes must be purchased to allow for the widening.

1.4 Sponsor (jurisdiction, agency name) City of Orem

1.5 Contact Information
   Project Manager Paul Goodrich
   Office Phone 801-229-7320
   Cell Phone 801-592-4160
   Fax 801-229-7191
   Email prgoodrich@orem.org

1.6 Cost Estimate
   Total Project Cost $907,000
   MPO Federal Funds Request (include 6.77% local match) $907,000
   Non-MPO Funds Available to Project NA
   PE Cost $22,000
   ROW Cost $476,000
   Construction $321,000

1.7 Regional Significance
   Is project in MPO transportation plan? Yes
   Is project on Utah State Functional Class Map? Yes

1.8 Air Quality Benefit (summarize CM/AQ Report, NA for non-CM/AQ eligible projects)
   NA
2.0 | Project Scope

Enter NA for answers to questions not applicable to your project.

2.1 Describe purpose and need of project.
Eastbound 1600 North has two travel lanes between State Street and the intersection at 400 West. However, at the intersection, the north eastbound travel lane turns into a left turn lane. This leaves only one eastbound travel lane through the intersection. This situation creates congestion. The north eastbound travel lane is underutilized because vehicles that want to travel eastbound become trapped in the turn lane. Drivers are using only the south eastbound travel lane to avoid becoming trapped at the intersection in the north lane. The proposed upgrades will increase the capacity of the eastbound movement at the intersection by moving the eastbound merge further east on 1600 North after the intersection.

2.2 Project length in miles.
0.27

2.3 Type of facility.
City of Orem classification is a minor arterial.

2.4 Width of facility.
54.5'

2.5 Facility surface type.
Asphalt

2.6 Expected use of facility or program.
NA

2.7 What services are provided in the operating of this project?
NA

2.8 Describe any equipment to be purchased (buses, ITS, etc.).
NA

2.9 Describe how project is consistent with local plans.
Consistent with the City of Orem Transportation Master Plan.

2.10 Describe how project is consistent with MPO transportation plan.
Consistent with the 2040 long range plan.

2.11 Describe how project is consistent with Utah County ITS plan.
NA

2.12 If phased or segmented, describe how the phase has logical termini and what will
future phases consist of.
NA

2.13 Is project being coordinated with or constructed with a larger project?
Future five lane highway needed between this project and the interchange at Interstate 15.

2.14 Describe how project will alleviate congestion on this or other facilities.
Drivers are using only the south eastbound travel lane to avoid becoming trapped at the intersection in the north lane. The proposed upgrades will increase the capacity of the eastbound movement at the intersection by moving the eastbound merge further east on 1600 North after the intersection.

2.15 Describe any traffic improvements. (i.e lanes, signal coordination, ITS, turn lanes, etc.) This project will create two eastbound travel lanes through the 1600 North 400 West intersection.

2.16 Describe any safety improvements for vehicular and pedestrian traffic. (i.e. raised median, channelization of turn movements, barriers, parkway strips, etc.) Drivers can be confused by the current configuration at the intersection. Drivers have been seen using the eastbound left turn lane as a eastbound travel lane. This project will clear up the confusing situation by creating a typical three-way signalized intersection.

2.17 How are complete streets addressed with this project? (plan for pedestrians, bikes, transit, trails, ITS) A pedestrian sidewalk will remain on the north and south side of 1600 North.

2.18 Describe traffic control changes at intersections. (include info to warrant changes) Concrete medians and striping will require modification. The existing signal equipment will require modification to allow for the additional eastbound travel lane and the relocation of the eastbound left turn lane onto 400 West.

2.19 What right-of-way is already secured?
None

2.20 What additional right-of-way is needed?
Right-of-way is required from the gas station parcel, two residential parcels which will also require damages for reduced building set-back, and two additional residential parcels that are a full-take.

2.21 Describe utility work to be performed and indicate who will do the work.
One streetlight will be relocated by City of Orem. Four water meters, two existing catch basins, and one irrigation box will be relocated by the project.
2.22 What type of environmental work will most likely be needed?
Categorical Exclusion

2.23 Facility Design

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<th>Current Conditions</th>
<th>Design Year 2015</th>
<th>Design Year w/o Improvements</th>
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<tr>
<td>Average Daily Traffic</td>
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<td>Level of Service</td>
<td>D</td>
<td>C</td>
<td>F</td>
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<td>Functional Class</td>
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<td>Arterial</td>
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<td>Design Speed</td>
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<tr>
<td>*Accident Rate</td>
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</tr>
<tr>
<td>Transit Ridership</td>
<td>Route 862 has 664 riders per weekday.</td>
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<tr>
<td>Ped/Trail Usage</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Park and Ride Usage</td>
<td>NA</td>
<td>NA</td>
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</tbody>
</table>

3.0 | Project Ranking
The following categories will be used by MPO staff to score each project. The points associated with each category show what total points MPO staff can give. MPO staff’s recommendations will be made available to the MPO TAC Committee for their use in making final project selection recommendations. MPO staff ranking is a tool to aid the MPO TAC Committee in their final selection. The committee is not required to pick projects solely on MPO staff ranks.

3.1 Congestion Relief (25 Points)
Explain if the project...

a) Provides an alternate transportation facility that corrects an identified congested problem?
   It corrects an identified congestion problem at two intersections: 1) State Street and 1600 North and 2) 1600 North and 400 West.

b) Reduces congestion by reducing the number of vehicles.
   It reduces the number of vehicles per lane by more efficiently distributing traffic.

c) Reduces the need for additional highway lanes for peak hour capacity.
   When an intersection functions at a higher capacity the surrounding highway section will function at a better capacity.
d) Increases the efficiency of transportation system through traffic management measures. There is less confusion and better traffic management with the elimination of trap lanes.

e) Adds turning movements to relieve a congested intersection. The current dual left turn lane does not work well for many reasons. A longer single left turn lane will relieve overall congestion and confusion.

3.2 Mode Choice (25 points)
Explain if the project...

a) Benefits multiple transportation systems (transit and highway, pedestrian and transit). Adding two through lanes eastbound will greatly enhance the functionality of the UTA bus stop.

b) Promotes alternative transportation solution to SOV use. Enhances the UTA bus stop functionality.

c) Creates or improves linkages between transportation modes. 1600 North is a major UTA route in Orem.

d) Reduces physical, psychological, or economic barriers to carpool, bike, walk, or transit use. NA

e) Provides incentives to carpool, bike, walk, or transit use. NA

3.3 Environmental Quality (15 points)
Explain if the project...

a) Provides cost effective emission reductions (amount of reduction justifies cost). In time, the amount of emission reduction will justify the cost.

b) Helps efforts to attain and maintain national air quality standards. Yes

c) Minimizes environmental impacts or reduces existing impacts (e.g. air/water/noise pollution). Reduces air pollution by decreasing intersection delays.

d) Enhances the natural, cultural, or historic environment. NA
3.4 Safety (20 points)
Explain if the project...

a) Corrects/improves a verified or potential safety or accident problem.
The elimination of trap lanes will increase safety.

b) Improves information/communications for traffic operations and emergency responders.
NA

c) Reduces severity of crashes.
The elimination of trap lanes will increase safety.

d) Enhances safe movement of pedestrian, bicycle traffic.
NA

e) Provides an intermodal safety improvement (e.g. separation of vehicles-trains, vehicles-pedestrian).
The project creates a way to not be impeded at the existing UTA bus stop.

3.5 Other Considerations (15 points)
Explain if the project...

a) Effectively distributes funding throughout the MPO area.
By phasing the 1600 North project (I-15 to 275 West), this allows funding to be distributed.

b) Phases project in a manner that the MPO can use limited funds efficiently.
Future widening of 1600 North from this intersection to the interchange at Interstate 15 will be enhanced by this first phase project.

c) Cost effectiveness is appropriate for the amount of improvement made.
Yes

d) Benefits transportation users from adjacent municipalities.
Yes - this benefits Orem and Lindon.

e) Is supported by elected officials.
Yes
4.0 | Air Quality Report
All projects that are eligible for CM/AQ funds must complete this report.

4.1 Eligibility
CM/AQ funds can only be used for projects and programs that a direct benefit to air quality can be demonstrated. Highway expansion, such as new single occupancy vehicle lanes, is not eligible. Turn lanes at congested intersections, transit programs, pedestrian and trail projects, signal modernization, ITS, and IM programs are typical eligible CM/AQ projects.

4.2 CM/AQ Program
The purpose of the CM/AQ program is to fund transportation projects or programs that will contribute to attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) in Ozone (O3), Carbon monoxide (CO), Particulate Matter - 10 microns (PM10), and PM2.5 non-attainment and maintenance areas. The city of Provo is a maintenance area for CO and Utah County is a non-attainment area for PM10 and PM2.5.

4.3 Completing this Report
All projects eligible for CM/AQ funds must complete this report. Completing this report can be quite technical, Susan Hardy, Air Quality Coordinator at Mountainland, can help with filling out this report. Contact her at 801/229-3842 or shardy@mountainland.org

4.4 Quantitative Analyses
A quantitative assessment of how a proposed project or program is expected to reduce emissions is important to assist in selecting the most effective use of this fund. List below all travel benefits directly related to this project. Air quality benefit calculations must utilize Mobile 6. The air quality analysis should include assessing emission reductions of transit, traffic flow improvements, ITS projects and programs, ridesharing, bicycle and pedestrian improvements. Complete at least one of the sections below. If quantitative analyses cannot be done, do a qualitative assessment in 4.3.

a) Vehicle Miles Traveled
   Number of Vehicle Miles Traveled reduced (VMT): NA
   Average distance of trips reduced: NA
   Emission reduction per average weekday: NA

b) Idling Time
   Average idling time per vehicle reduced: NA
   Number of vehicles with reduced idling time: NA
   Emission reduction per average weekday: NA

C) Vehicle Speed
   Average change in vehicle speed (speed before and after): NA
   Number of vehicles affected: NA
   Emission reduction per average workday: NA
4.5 Qualitative Assessment

Although a quantitative analyses of air quality impacts is required whenever possible, some improvements may not lend themselves to rigorous quantitative analysis, because of the projects characteristics or because practical experience is lacking to adequately analyze the project. In these cases, a qualitative assessment based on a reason and logical examination of how the project or program will decrease emissions and contribute to attainment or maintenance of a NAAQS is appropriate.

NA
5.0 | Project Cost Estimate

To develop a project cost estimate, please supply a detailed cost breakdown of your unit costs, inflation, equipment, right-of-way, contingency, etc. To do so, use the Concept Costs Estimate Excel form provided by UDOT. Non-construction projects such as equipment purchases, operations, administration programs, studies, etc. can use other methods to show their estimated costs. All sheets or methods used should be submitted as part of the Supplemental Information accompanying the Concept Report.

5.1 Cost Summary

Summarize the information from the Costs Estimate Excel form or other method. Enter NA for items that do not apply to the project.

- a) Preliminary Engineering $20,000
- b) Environmental Work $16,000
- c) Construction $250,000
- d) UDOT Review (project cost <$500k = $5k, >$500k = $10k) $10,000
- e) Construction Engineering $25,000
- f) Subtotal $818,800
- g) Inflated Cost Factor (inflate to year of construction) $88,200
- h) Total Cost $907,000
- i) Non-MPO Funds Available to Project NA
- j) MPO Federal Funds Request (includes 6.77% local match) $907,000

6.0 | Supplemental Information

Please submit any supporting documentation including maps, diagrams, charts, cost estimates, etc. that will allow MPO staff and the MPO Technical Advisory Committee to make an informed decision regarding the proposed project. **Keep Supplemental Information submittals to 8 pages total.**

6.1 Concept Report Submittal to Mountainland

In order to facilitate the distribution of the Concept Reports and any supplemental information, **all Concept Reports shall be combined with any supplemental information and saved in PDF format as one document.** Please note that this might create a large data file that might be too large to emailed. Plan accordingly to deliver your report in electronic format (CD, DVD, Flash Drive) to Mountainland by the required due date.

6.2 Contacts, Questions

For help with the Concept Report or questions, please contact:

Shawn Eliot, AICP
586 East 800 North, Orem, UT 84097
p.801/229-3841  f.801/229-3801
email seliot@mountainland.org
## Cost Estimate - Concept Level

**Prepared By:** Ryan L. Clark  
**Date:** 4/12/2012

- **Approximate Route Reference Post (BEG/ENE):**  
- **Accumulated Mileage (BEG/ENE):**  
- **Project Length:** 0.272 miles, 1,434 ft
- **Current Year:** 2012
- **Assumed Construction Year:** 2015
- **Construction Items Inflation Factor:** 1.28  
  **3 yrs for inflation**
- **Assumed Yearly Inflation for Engineering Services (PE and CE) (%/yr):** 2.5%
- **Assumed Yearly Inflation for Urban Residential Right of Way (%/yr):** 0.0%
- **Assumed Yearly Inflation for Urban Commercial Right of Way (%/yr):** 0.0%
- **Assumed Yearly Inflation for non-Urban Right of Way (%/yr):** 0.0%
- **Items not Estimated (% of Construction):** 10.0%
- **Preliminary Engineering (% of Construction + Incentives):** 8.0%
- **Construction Engineering (% of Construction + Incentives):** 10.0%

### Construction Items

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<tr>
<th>Description</th>
<th>Cost</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Roadway and Drainage</td>
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<tr>
<td>Traffic and Safety</td>
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<td>Structures</td>
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<td>Environmental Mitigation</td>
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<td>Items not Estimated (10%)</td>
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<td>P.E. Cost</td>
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### Cost Estimate (ePM screen 505)

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<th>Description</th>
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<td>P.E.</td>
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<td>Right of Way</td>
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<td><strong>TOTAL</strong></td>
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**PROPOSED COMMISSION REQUEST**  
**TOTAL:** $818,800  
**TOTAL:** $907,000