1.0 | Project Summary Information

1.1 Project Name (35 letters max) State Street Raised Medians

1.2 Project Type Road - Reconstruction

1.3 Limits (descriptions should be identifiable. i.e: intersections, place names, landmarks, 35 characters max) 2000 North in Orem to Bulldog Boulevard in Provo.

1.4 Project Description (summary of project) Construct raised medians along State Street to correct safety problems, and increase capacity by reducing friction created by two way left turn lanes. Locations for openings in the median will be identified in an environmental clearance and public involvement process. UDOT has $2.2 Million in state safety funds for this project ($100 K now - $200 K in October 2016 - $1.9 Million in October 2017). A cost estimate is attached. The project will need to be phased since constructing medians in the entire corridor will cost over $10 Million.

1.5 Sponsor (jurisdiction, agency name) City of Orem

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

1.7 Total Project Cost (includes local match and additional funds) $ 3.7 Million
   PE Cost $375,000 (PE and PI)
   ROW Cost N/A
   Construction Cost $3,325,000
   Funds already available to project (less local match) $101,550
   MPO Federal Funds Request (includes 6.77% local match) $1.5 Million

1.8 Local/Regional Significance
   Is project in local general plan? Yes
   Is project in MPO transportation plan? Supported in plan
   Is project on a corridor on the Utah State Functional Class Map? Yes

1.9 Air Quality Benefit (summarize CM/AQ Report, NA for non-CM/AQ eligible projects)
   N/A
1.10 Leadership Approval (local=mayor, manager, commissioner; state=dept. head). Acknowledges knowledge, support and approval to submit project to Mountainland.

[Signature]

City Manager 18 March 2016

[Signature]

James P. Davidson
2.0 | Project Scope
Enter NA for answers to questions not applicable to your project.

2.1 Describe purpose and need of project.
The purpose of the project is three fold:
1) To correct safety problems identified by UDOT throughout the corridor.
2) To educate the public why providing raised medians are needed. According to the Highway Safety Manual (HSM), providing a raised median on urban arterial multilane roads may reduce injury crashes by approximately 22 percent. Injury crashes include fatal, severe injury, possible injury, and minor injury crashes.
3) To potentially increase vehicle capacity by reducing friction created by long stretches of continuous center left turn lanes.
The project is needed because regional growth will continue to increase demands for a safe and efficient north/south corridor through the Orem and Provo area.

2.2 Describe existing service/conditions
State Street has an ADT of 33,000 on the north end of Orem and gradually increases to 55,000 between University Parkway and 1600 South. The ADT then significantly drops to 39,500 south of 1600 South. The current LOS, per the Utah/Wasatch Front Specific Maximum Daily Traffic Capacity Estimate Table, ranges from LOS B to LOS E (between intersections).

2.3 Highway Project Information

SR# or FA#
US 89

Beginning Mile Post
Click here to enter text.

End Mile Post
Click here to enter text.

Length of project
Approximately 6 miles

Existing number of Travel Lanes
7 (3 lanes in each direction with a center two way left turn lane).

Width of facility.
ROW approximately 132 feet wide.

Facility surface type.
Concrete and asphalt.

2.4 Transit / Pedestrian Facility Project Information
Route# 850

Length of project
UTA route 850 runs from the Lehi FrontRunner Station to the Provo FrontRunner Station.

What is the expected use of the facility or program?
Future BRT or LRT Route

What services are provided in the operating of this project?
Current bus service through Lehi, American Fork, Pleasant Grove, Lindon, Orem, and Provo.

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

2.6 Describe how project is consistent with local plans.
The use of raised medians on State Street has been adopted in the State Street Master Plan. Planning agencies included Orem, Provo, UDOT, UTA, and MAG.

2.7 Describe how project is consistent with Utah County ITS plan.
This project does not interfere with the June 2008 ITS plan.

2.8 If phased or segmented, describe how the phase has logical termini and what will future phases consist of.
The funding currently available from UDOT, and requested from MAG, will only build medians from approximately 200 North to 1150 South in Orem. Additional funds will be needed in the future from UDOT and MAG to complete the entire corridor.

2.9 Is project being coordinated with or constructed with a larger project?
No

2.10 Describe how project will alleviate congestion on this or other facilities.
Congestion created by eliminating conflicting traffic movements with through traffic will be accomplished with the construction of raised medians.

2.11 Describe any traffic improvements. (i.e lanes, signal coordination, ITS, turn lanes, bus pullouts, etc.)
Raised medians with landscaping will be constructed between signalized intersections. 3/4 access median openings will be constructed at key locations between signals.

2.12 Describe any safety improvements for vehicular and pedestrian traffic. (i.e. raised median, channelization of turn movements, barriers, parkway strips, etc.)
Raised medians with landscaping will be constructed between signalized intersections. 3/4 access median openings will be constructed at key locations between signals.
2.13 How are complete streets addressed with this project? (plan for pedestrians, bikes, transit, trails, ITS)
Raised medians can provide a safe refuge area for pedestrians that choose to cross State Street between traffic signals. Eliminating left turn and cross road traffic movements at many locations will make conditions safer for pedestrians, bikes, and transit.

2.14 Describe traffic control changes at intersections. (include info to warrant changes)
NA

2.15 What right-of-way is already secured?
NA

2.16 What additional right-of-way is needed?
None

2.17 Describe utility work to be performed and indicate who will do the work.
Water laterals will need to be supplied to the raised medians with landscape elements.

2.18 What type of environmental work will most likely be needed?
Environmental Accessment

2.19 Facility Design

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<th></th>
<th>Current Conditions</th>
<th>Design Year Click here to enter</th>
<th>Design Year w/o Improvements</th>
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<td>Average Daily Traffic</td>
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<td>Level of Service</td>
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<td>*Accident Rate</td>
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<td>2.0 to 25</td>
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<tr>
<td>Transit Ridership</td>
<td>450k to 500k annually</td>
<td>1.5 million annually</td>
<td>750k annually</td>
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<td>Ped/Trail Usage</td>
<td>200/day</td>
<td>4,000/day</td>
<td>3,500/day</td>
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<tr>
<td>Park and Ride Usage</td>
<td>NA</td>
<td>NA</td>
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</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. Please note, if questions pertinent to the project are not answered, zero points will be given.

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

a) Provides an alternate transportation facility that corrects an identified congested problem? State Street can become a more viable alternate route to I-15 between communities with better access management, safety improvements, and appropriate landscaping of the corridor.

b) Reduces congestion by reducing the number of vehicles. The number of left turn vehicles that induce congestion will be significantly reduced by channelizing left turn vehicles to manageable locations.

c) Reduces the need for additional highway lanes for peak hour capacity. Traffic capacity can be increased by the use of better access management techniques.

d) Increases the efficiency of transportation system through traffic management measures. Reducing friction for through traffic (northbound and southbound) will make the through lanes on State Street more efficient.

e) Adds turning movements to relieve a congested intersection. NA

f) Design year number of users. Users include the average AADT for highways and users per day for transit, trails, and other projects. 2040

g) 2020 V/C data (computed by MPO staff) 0.65 to 0.88

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

a) Benefits multiple transportation systems (transit and highway, pedestrian and transit). Reduces traffic friction for transit, highway, and pedestrian use.

b) Promotes alternative transportation solution to SOV use.
Cyclists and pedestrians will feel that the corridor is more friendly and inviting with landscaped medians and less traffic friction due to a reduction in traffic movement conflicts.

c) Creates or improves linkages between transportation modes. Highway capacity between signalized intersections will be improved.

d) Reduces physical, psychological, or economic barriers to carpool, bike, walk, or transit use. Traffic conflicts created by the two way center turn lane creates huge physical and psychological barriers for vehicles, bikes, and pedestrians.

e) Provides incentives to carpool, bike, walk, or transit use. Physical and psychological barriers for cyclists, pedestrians, and transit users will be reduced.

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

a) Provides cost effective emission reductions (amount of reduction justifies cost). A more efficient corridor will improve north/south vehicle capacity and reduce conflicts that induce slowing down and then speeding up to accommodate left turn interruptions of traffic.

b) Helps efforts to attain and maintain national air quality standards. See 3.3 a.

c) Minimizes environmental impacts or reduces existing impacts (e.g. air/water/noise pollution). Landscaping with trees improves air quality.

d) Enhances the natural, cultural, or historic environment. Landscaped medians enhances the natural environment.

e) Mitigates invasive impacts to existing neighborhoods/commercial areas (minimal relocations). There will be no invasive impacts to neighborhoods. Neighborhood quality should improve by providing a more inviting landscaped corridor that softens some of the barriers of the existing street (see section 3.2).

3.4 Safety (20 points)
Explain if the project...

a) Corrects/improves a verified or potential safety or accident problem. $2.2 Million in UDOT safety funds have been approved to correct safety problems they identified on the corridor. The attached cost estimate also provides accident rates per section. The highest crash rate is from 200 North to 200 South (53.9 crashes per mile). Only crashes related to having a two way left turn lane were included in this safety analysis.

b) Improves information/communications for traffic operations and emergency responders. NA
c) Reduces severity of crashes.
   According to the Highway Safety Manual (HSM), providing a raised median on urban arterial
   multilane roads may reduce injury crashes by approximately 22 percent. Injury crashes include
   fatal, severe injury, possible injury, and minor injury crashes. According to the HSM providing a
   raised median may reduce injury crashes by an average of 22% (more or less depending on site
   specific circumstances).

d) Enhances safe movement of pedestrian, bicycle traffic.
   Psychological barriers and conflicting traffic movements will be reduced.

e) Provides an intermodal safety improvement (e.g. separation of vehicles-trains, vehicles-
   pedestrian).
   Provides a refuge area for pedestrians that choose to cross State Street between traffic signals.

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

a) Effectively distributes funding throughout the MPO area.
   We are not asking for funding to build raised medians from 2000 North to Bulldog Boulevard in
   Provo in one phase. We would need over $10 Million to accomplish that task (see the attached
   cost estimate). The funding available from UDOT and requested through MAG will just build
   medians from approximately 200 North in Orem to 1150 South in Orem. We understand the
   need to distribute funds - that is why we are not asking for everything we need in one phase.

b) Phases project in a manner that the MPO can use limited funds efficiently.
   As described above - also anytime you can combine limited funds with UDOT funds that is highly
   efficient.

  c) Cost effectiveness is appropriate for the amount of improvement made.
     This question is answered in the affirmative throughout this document.

  d) Benefits transportation users from adjacent municipalities.
     Improving the safety and capacity of State Street will make it a more viable alternate to I-15 use
     between adjacent communities.

  e) Is supported by elected officials.
     The City Council adopted the State Street Master Plan in 2015. This Plan identifies the need for
     the implementation of landscaped medians along State Street.
4.0 | Air Quality Report

All projects that are eligible for CM/AQ and CM/AQ-PM2.5 funds must complete this report (see CM/AQ Eligibility list at www.mountainland.org/tipselection). These funds are eligible for projects and programs countywide.

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): Click here to enter text.
Average distance of trips reduced: Click here to enter text.
Emission reduction per average weekday: Click here to enter text.

b) Idling Time
Average idling time per vehicle reduced: Click here to enter text.
Number of vehicles with reduced idling time: Click here to enter text.
Emission reduction per average weekday: Click here to enter text.

C) Vehicle Speed
Average change in vehicle speed (speed before and after): Click here to enter text.
Number of vehicles affected: Click here to enter text.
Emission reduction per average workday: Click here to enter text.
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.
Click here to enter text.
5.0 | Project Cost Estimate
To development 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 (available at www.mountainland.org/tipselection). 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 $250,000
b) Environmental Work $125,000
c) Construction $2,300,000
d) UDOT Review (project cost <$500k = $5k, >500K = $10k) $10k
e) Construction Engineering $230,000
f) Subtotal $3,350,000
g) Inflated Cost Factor (inflated to year of construction) 11%
h) Total Project Cost (enter total cost, not funding request)) $3,700,000
i) Additional Funds (less local match) Available to Project $2,200,000
j) MPO Federal Funds Request (includes 6.77% local match) $1,500,000

6.0 | Supplemental Information
Please submit any supporting documentation including maps, diagrams, charts, cost estimates, etc. that will allow MPO and UDOT staff and any 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
In order to facilitate the distribution of the Concept Reports and any supplemental information, all Concept Reports with leadership signature, 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 submit your report in electronic format (CD, DVD, Flash Drive) by the required due date. Concept Reports are due by Thursday 03/24/2016 at 6pm.

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

Bob Allen, AICP
586 East 800 North, Orem UT 84651
p.801/229-3813 f.801/229-3801
email ballen@mountainland.org

Shawn Eliot, AICP
586 East 800 North, Orem, UT 84097
p.801/229-3841 f.801/229-3801
email seliot@mountainland.org
### State Street Medians - Full Project

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<tr>
<th>State Street Segment</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>No. Full Intersections</th>
<th>No. 3/4 Intersections</th>
<th>Remaining Length (ft)</th>
<th>Total Cost</th>
<th>Full Width Median Cost</th>
<th>Intersection Median Costs</th>
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### State Street Medians - Segment Analysis

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<th>State Street Segment</th>
<th>Length (ft)</th>
<th>Length (mi)</th>
<th>Include?</th>
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<th>Total Crashes per mile</th>
<th>Injury Crashes</th>
<th>Injury Crashes per mile</th>
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