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MEMORANDUM #12 – PERFORMANCE ANALYSIS OF FINANCIALLY CONSTRAINED AND PLANNED TRANSPORTATION SYSTEMS AND ALTERNATIVE MOBILITY TARGETS

Date: May 28, 2015

Project #: 17817

To: Technical Advisory Committee, Citizens Advisory Committee

From: Susan Wright, PE, Matt Bell, and Ribeka Toda

Project: City of West Linn Transportation System Plan Update

Subject: Performance Analysis of Financially Constrained and Planned Transportation Systems

The purpose of this memorandum is to document how well the Draft Planned and Draft Cost Constrained transportation systems identified in Technical Memo #11 meet or help advance the goals and targets for the TSP Update that were developed at the beginning of the project. As part of that assessment, the potential future bicycle and pedestrian networks were evaluated to determine the future Bicycle Level of Traffic Stress (LTS) and Pedestrian Qualitative Multi-modal Level of Service (QMMLOS) based on completion of the projects in the Draft Cost Constrained Plan. The purpose of this review is to determine if any changes to the Draft Financially Constrained Plan are warranted to improve connectivity of the low stress and high quality networks. In addition, future traffic operations from the previous TSP were reviewed and compared to the Draft Financially Constrained Plan to determine if City and ODOT operation standards are likely to be met in the future and if not, identify if alternative actions or mobility standards may be warranted.

SAFETY

The first goal of the TSP update is to reduce transportation related fatalities and injuries for all transportation modes. In order to ensure the TSP update will help the City make progress toward meeting this goal, two targets were identified (1A and 1B). Table 1 provides a summary of the targets, including current benchmark data from the Oregon Department of Transportation's (ODOT) crash data base, the total number of projects included in the Draft Plan and the Draft Financially Constrained Plan that are intended to address a specific safety issue or will improve safety in general, and how the city will monitor its progress toward meeting the goal.

Table 1: Safety

Target	Current Benchmark	2040 Financially Constrained Plan Performance	Monitoring Plan
Target 1A – Zero severe injury and fatal collisions by mode.	Number of severe injury crashes over five year period (15 crashes) Number of fatal crashes over five year period (3 crashes) Number of crashes involving pedestrians or bicyclists over five year period (19 crashes)	11 projects are included in the Draft TSP project list to improve safety at existing locations of severe injury and fatal crashes. 9 are included in the Draft Financially Constrained Plan.	Document the measure on an annual basis based on a review of data maintained by ODOT. Successful progress towards the target includes a steady reduction each year in the number severe injury and fatal collisions compared to prior years.
Target 1B - Reduce total number of high collision locations to zero by 2040.	Number of ODOT SPIS locations (1 location) Number of intersections with a crash rate above 1.0 crashes/MEV (0 intersections)	48 projects are included in the Draft TSP that will improve safety for all roadway users. 34 are included in the Draft Financially Constrained Plan.	Document the measure on an annual basis based on a review of data maintained by ODOT. Successful progress towards the target includes a steady reduction each year in the number of SPIS locations and locations with a crash rate above 1.0.

MOBILITY, ACCESS AND ENVIRONMENT

The second goal of the TSP update is to improve people's access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy. In order to ensure the TSP update will help the City make progress toward meeting this goal, seven targets were identified (2A through 2G). Table 2 provides a summary of the targets, including current benchmark data from Metro’s regional travel demand model and other sources, the total number of projects included in the Draft Plan and the Draft Financially Constrained Plan that are intended to address a specific mobility, access, and/or environmental issue or will improve conditions in general, and how the city will monitoring its progress toward meeting the goal.

Table 2: Mobility, Access and Environment

Target	Current Benchmark	2040 Financially Constrained Plan Performance	Monitoring Plan
Target 2A - Reduce single- occupant vehicle miles traveled (VMT) per capita as compared to 2010 so that total VMT remains steady or declines as growth occurs.	2010 Metro Travel Demand Model VMT - 513,725 VMT VMT per Capita produced from West Linn - 15.5 VMT per Capita	2040 Metro Travel Demand Model VMT - 639,036 VMT VMT per Capita produced from West Linn - 15.8 VMT per Capita Note: The model is not sensitive enough to evaluate the impacts to VMT of the pedestrian, bicycle, and transit projects included in the Draft TSP that will have an impact on this measure. However, 128 projects in the Draft TSP are anticipated to help reduce VMT. 33 are included in the Draft Financially Constrained Plan.	Document the measure each time a new base year is created for the Metro Travel Demand Model. Successful progress towards the target includes a reduction in VMT per capita such that VMT remains steady or declines over time even as growth occurs.
Target 2B – Achieve 40-45% non-single occupant vehicle (SOV) trip mode share in 2040 industrial and employment areas	2010 Metro Travel Demand Model Non-SOV mode share in industrial and employment areas and neighborhoods - 49% ¹ 2010 Metro Travel Demand Model	Projects were evaluated based on this target. 45 projects meet this target, and 19 are considered high priority. The model is not sensitive enough to evaluate the impacts to mode split of	Document the measure each time a new base year is created for the Metro Travel Demand Model. Successful progress towards the target includes an increase in the non-SOV mode share in the 2040 investment areas over time

and neighborhoods, and 45-55% in 2040 town centers, main streets, and corridors by 2040.	Non-SOV mode share in town centers, main streets and corridors - 49% 2040 Metro Travel Demand Model Non-SOV mode share in industrial and employment areas and neighborhoods - 33% ² 2014 Metro Travel Demand Model Non-SOV mode share in town centers, main streets and corridors - 49%	the pedestrian, bicycle, and transit projects included in the Draft TSP that will have an impact on this measure. However, 45 projects in the Draft TSP are anticipated to help increase mode splits. 19 are included in the Draft Financially Constrained Plan.	even as growth occurs.
Target 2C – Improve freight travel time reliability.	There is currently no existing data available for this target.	Projects were not evaluated based on this target, but this target should be a consideration for future projects as it applies.	Document the measure each time a new base year is created for the Metro Travel Time Reliability (DTA) Model. Successful progress towards the target includes steady decline in the variability of travel time on I-205 and OR 43
Target 2D - Increase the percentage of people that can access key destinations via a 20 minute walk, bike or public transit ride by 40 percent by 2040.	Percent of the population within a 20 minute walk, bike, or public transit ride of key destinations - 100%	133 projects in the Draft TSP are anticipated to further reduce walking, biking and transit times to key destinations. 37 are included in the Draft Financially Constrained Plan.	Document the measure at each TSP Update based on current Metro Transportation Analysis Zone (TAZ) information. Successful progress towards the target includes steady increase in the percent of the population within a 20 minute walk, bike or public transit ride of key destinations.
Target 2E –Active Safe Routes to School (SRTS) Programs in place in all West Linn schools.	As of 2014, SRTS routes have been identified for the five primary schools . The number of programs/activities that occur per year to encourage walking and biking is unknown.	26 projects in the Draft TSP will improve conditions along the safe routes to school	Document the measure at each TSP Update. Successful progress towards the target includes the identification of SRTS for each school, information being made available to parents/students, and one or more events per year occur at each school that help disseminate the information and encourage walking and biking to school.
Target 2F – A good quality pedestrian network and low stress bicycle network connecting all residents to key destinations.	2014 “Good” quality pedestrian network 2014 LTS 2 or better bicycle network	Projects were evaluated based on this target. 103 projects are included in the Draft TSP that will improve Bicycle LTS and Pedestrian QMMLOS. 27 are included in the Draft Financially Constrained Plan. See Figures 1 and 2 for the changes in the LTS and QMMLOS networks resulting from the Draft Financially Constrained Plan projects.	Document the measure at each TSP Update. Successful progress towards the target includes an increase in the network of “Good” quality pedestrian facilities and LTS Level 2 or better bicycle facilities.
Target 2G – Increase the number of green street facilities by 2040	There is currently no existing data available for this target.	Projects were not evaluated based on this target, but this target should be considered during project development.	Document the measure at each TSP Update. Successful progress towards the target includes an increase in the number of green street facilities at each TSP Update.

1. Calculated based on citywide data.
 2. Calculated based on TAZs 1102 and 1109

Figures 1 and 2 identify the future Bicycle Level of Traffic Stress (LTS) and Pedestrian Qualitative Multi-modal Level of Service (QMMLOS) based on completion of the projects in the Draft Cost Constrained Plan.

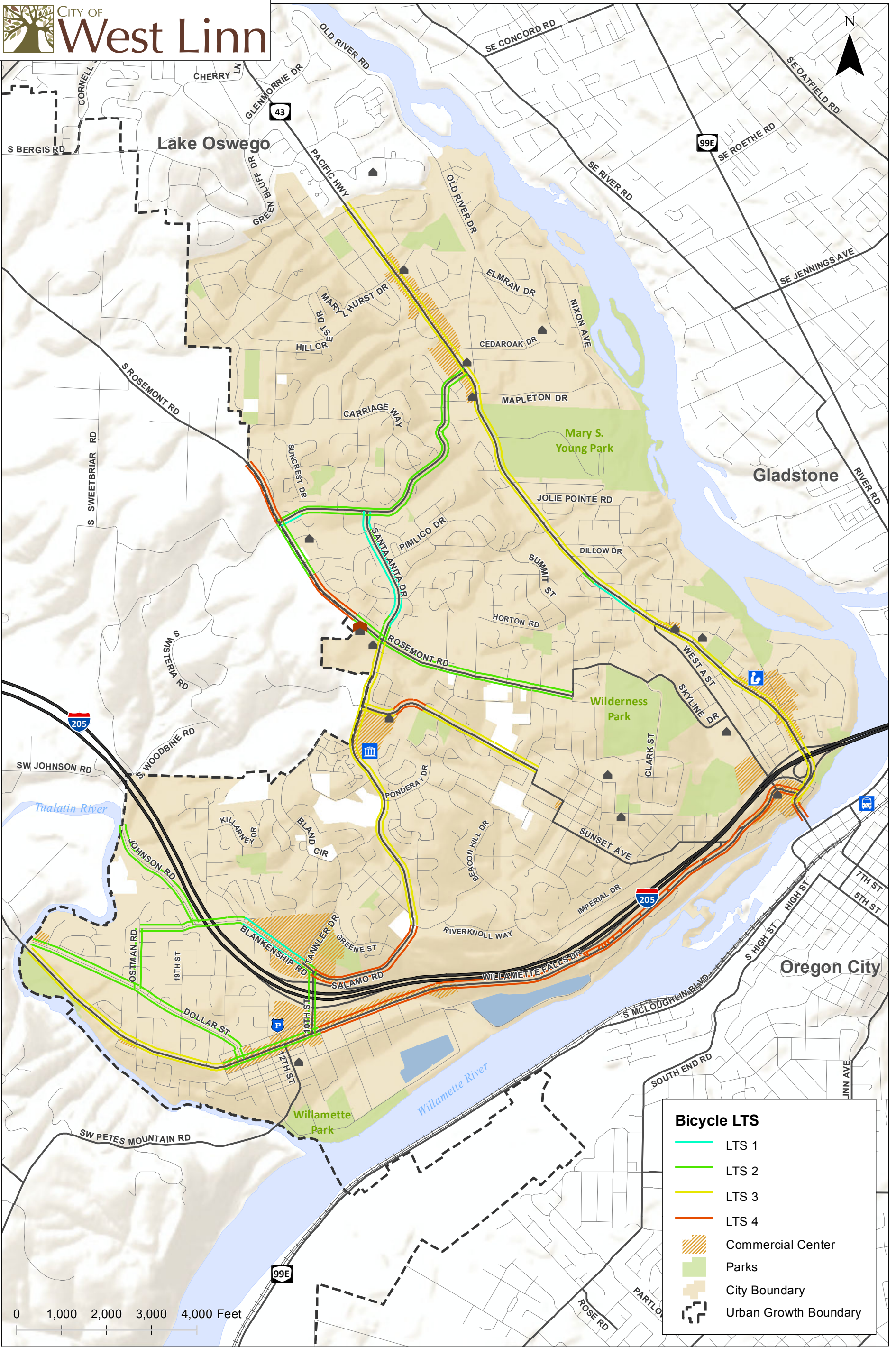


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Future Pedestrian Qualitative Multi-modal Level of Service (QMMLOS) West Linn, Oregon

Figure 1

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0 1,000 2,000 3,000 4,000 Feet

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**Bicycle Level of Traffic Stress (LTS)
West Linn, Oregon**

**Figure
2**

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Pedestrian QMMLOS

As shown in Figure 1, the QMMLOS analysis results indicate that seven roadway segments will continue to be ranked fair and five segments will continue to be ranked poor with the projects included in the Draft Cost Constrained Plan. The following summarizes the segments that will continue to be ranked poor:

- Rosemont Road - The south side of Rosemont Road from Salamo Road to Wild Rose Drive
- Rosemont Road - The north side of Rosemont Road from Gregory Court to Summit Street.
- Willamette Drive - The south side of Willamette Drive from Barlow Street to Caulfield Street.
- Dollar Street - The south side of Dollar Street from Ostman Road to the western roadway terminus.
- Ostman Road - The west side of Ostman Road from Dollar Street to Willamette Falls Drive.

The Draft Plan includes sidewalk projects along each of these roadway segments. The Draft Cost Constrained Plan could be updated to include these projects to further improve pedestrian connectivity within the City. As an alternative, the Draft Cost Constrained Plan could be updated to emphasize continuous sidewalks on a least one side of all major roadways, such as Rosemont Road, Willamette Falls Drive, Skyline Drive, Sunset Avenue, and others to improve pedestrian connectivity.

Bicycle LTS

As shown in Figure 2, the LTS analysis results indicate that five roadway segments will continue to be ranked LTS 3 and six segments will continue to be ranked LTS 4 with the projects included in the Draft Cost Constrained Plan. The following summarizes the segments that will continue to be ranked LTS 4:

- Rosemont Road – Both sides of the roadway from Carriage Way to Hidden Springs Road
- Rosemont Road – Both sides of the roadway from Bay Meadows Drive to Furlong Drive
- Parker Road – Both sides of the roadway from Noble Lane to Dillon Lane
- Salamo Road – Both sides of the roadway from Barrington Drive to 10th Street
- Willamette Falls Drive – Both sides of the Roadway from Highway 43 to 10th Street
- Highway 43 from Mill street to the south city limits

The Draft Plan includes new bike lanes along each of these roadways. The Draft Cost Constrained Plan could be updated to include these projects to further improve bicycle connectivity within the City. As an alternative, the Draft Cost Constrained Plan could be updated to include shared use pavement markings and/or signs as interim improvements along several streets to improve bicycle connectivity.

EQUITY

The third goal of the TSP update is to deliver transportation improvements equitably. In order to ensure the TSP update will help the City make progress toward meeting this goal, two targets were identified (3A and 3B). Table 3 provides a summary of the targets, including current benchmark data from and evaluation of US Census data, the total number of projects included in the Draft Planned TSP and the Draft Financially Constrained plan that are intended to address a specific equity issue or will improve conditions in general, and how the city will monitoring its progress toward meeting the goal.

Table 3: Equity

Target	Current Benchmark	2040 Financially Constrained Plan Performance	Monitoring Plan
Target 3A – By 2040 increase walking, bicycle and public transit access, for transportation disadvantaged populations, to key destinations, by 40 percent	Percent of the transportation disadvantaged population within a 20 minute walk, bike, or public transit ride of key destinations (2010) - 100%	135 projects are included in the Draft TSP project list that will improve facilities, provide a more direct route and reduce travel time, or will increase the percent of the population in the 20 minute zone. 37 of the projects are included in the Draft Financially Constrained Plan.	Document the measure at each TSP Update based on current census data information. Successful progress towards the target includes steady increase in the percent of the population within a 20 minute walk, bike or public transit ride of key destinations.
Target 3B - Ensure transportation services (and impacts) are equitably distributed to all segments of the population.	There is currently no existing data available for this target.	Of the 85 projects in the Draft Financially Constrained Plan, a majority are located within census tracts with the highest concentrations of transportation disadvantaged	Evaluate distribution of capital improvements at each CIP Update. Document the measure at each TSP Update

MAINTENANCE

The fourth goal of the TSP update is to deliver access and safety improvements cost effectively, within available revenues, and responsively to the needs of all users of the transportation system. The City currently prioritizes roadway maintenance projects based on a Pavement Condition Index (PCI) prioritization system. Although pavement conditions were not used to identify or prioritize projects for the TSP Update, two maintenance related targets were identified (4A and 4B) to help the City track progress toward meeting this goal. Table 4 provides a summary of the targets, including current benchmark data from the City’s most recent Pavement Conditions Report and documents how the city will monitoring its progress toward meeting the goal.

Table 4: Maintenance

Target	Current Benchmark	2040 Financially Constrained Plan Performance	Monitoring Plan
Target 4A - Increase the average local road pavement condition index (PCI) to 70 by 2040.	2014 average local road PCI (TBD)	N/A – PCI not considered in TSP Update.	Document the measure annually. Successful progress towards the target includes an increase in the average local road PCI.

Target 4B - Reduce the number of transportation facilities in "distressed" condition by 5 percent by 2040.	2014 number of facilities in distressed condition (TBD).	N/A – PCI not considered in TSP Update.	Document the measure annually. Successful progress towards the target includes a reduction in the number of facilities in distressed condition.
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OPERATIONS AND MOBILITY TARGETS

The majority of the motor vehicle projects in the Draft Plan are currently ranked medium and low priority and therefore, not included in the Draft Cost Constrained Plan. The result is that several intersections are expected to exceed their respective operational standards (City) or mobility targets (ODOT) in the future. The following intersections are expected to exceed their standards/targets under 2040 traffic conditions. While there are projects identified in the Draft Plan to address the issues, none of them are included in the Draft Cost Constrained Plan:

- M1: Willamette Falls Drive/Sunset Avenue – Install a traffic signal when warranted.
- M2: Rosemont Road/Carriage Way – Add a center median on Rosemont Road to allow two stage left-turn from Carriage Way.
- M3: Rosemont Way/Hidden Springs Road – Add a traffic signal when warranted and northbound/southbound left-turn lanes on to Rosemont Road.
- M4: Willamette Falls Drive/Ostman Road – Widen Willamette Falls Drive with center median 500’ on each side of intersection to allow for two-stage left turn from Ostman Road.
- M5: Willamette Falls Drive/Dollar Street (east) – Widen Willamette Falls Drive with center median 500’ on each side of intersection for two-stage left turn from Dollar Street.
- M6: 10th Street/I-205 NB Ramp - Widening 10th Street to four lanes with side-by-side left-turn lanes between the ramp terminals.
- M7: 10th Street/Blankenship-Salamo Road – Add a 2nd eastbound right turn lane and a 2nd westbound left-turn lane.
- M8: 10th Street/Willamette Falls Drive – Install traffic signal with dual eastbound left-turn lanes.
- M9: 10th Street/8th Avenue-Court – Restrict to right-in, right-out, left-in when warranted if of 8th Court is extended to Willamette Falls Drive.
- M11: Willamette Falls Drive/12th Street – All way stop control/ traffic signal when warrants are met.
- M17: Salamo Road/Parker Road – Add a traffic signal when warranted.
- M19: Highway 43/Willamette Falls Drive – Add a traffic signal that is coordinated with adjacent signal at I-205 NB Off Ramps.
- M20: Highway 43/Arbor Drive – Add left turn lanes on Highway 43.

The following intersections are expected to exceed their respective mobility standards under 2040 traffic conditions and do not have projects identified in the Draft Plan or the Draft Cost Constrained Plan:

- Highway 43/Hidden Springs Road
- Highway 43/Jolie Pointe Road
- Highway 43/Burns Street
- Highway 43/I-205 SB Ramp
- Highway 43/Willamette Falls Drive
- Willamette Falls Drive/Dollar Street (west)

The following actions are recommended for locations that are not projected to meet city standards or ODOT mobility targets:

City Intersections

- Identify projects that are likely or feasible to be triggered by and completed by development.
- Review the remaining locations to determine if they warrant an increase in priority based on potential safety issues.

ODOT Intersections

- 10th Street Corridor – It is unlikely that the improvements identified in the Draft Plan for 10th Street will be completed by private development. Currently the Draft Plan improvements are ranked low and medium priority. The city should consider collecting proportionate shares from development (in addition to their Transportation SDCs) and seek regional funds to help fund these improvements or consider increasing the priority.
- Highway 43 – The Highway 43 Concept Plan and the Draft TSP include improvements at several Highway 43 intersections and all are included in the Cost Constrained Plan. Although the Highway 43 Concept Plan is not increasing the capacity of the corridor, it will increase capacity and safety at some locations through the provision of turn lanes and traffic signals. The Highway 43 locations listed above do not currently include an improvement in the Highway 43 Concept Plan but should be re-evaluated through the existing Highway 43 Concept Plan Refinement process. If no additional mitigations are recommended, the City should work with ODOT to develop alternative mobility targets per Oregon Highway Plan policy 1F.3.