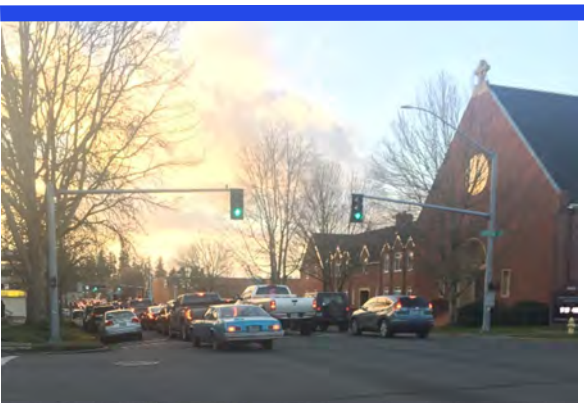
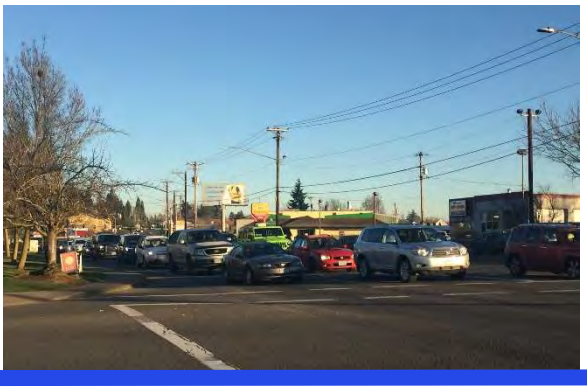
SALEM CONGESTION RELIEF TASK FORCE

FINAL REPORT





SALEM CONGESTION RELIEF TASK FORCE
FINAL REPORT

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1. PROJECT BACKGROUND AND GOAL

Over the past decade, regional transportation experts, City staff, and the community have been considering transportation options to relieve congestion in downtown and west Salem that have included a new Willamette River crossing and other capacity improvements. While these discussions have been ongoing, no specific transportation improvement projects have been approved by the City or ODOT.

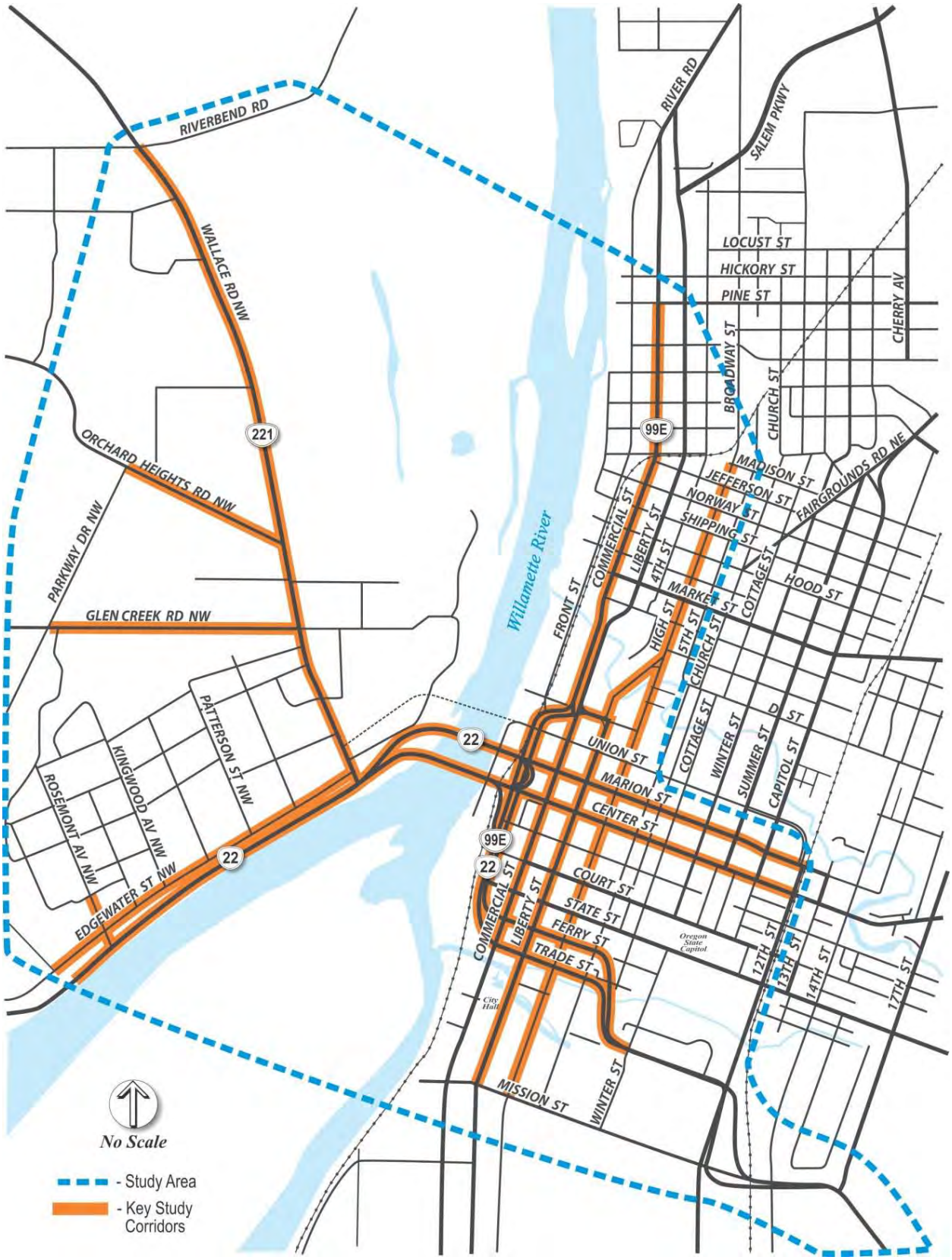
In the meantime, congestion and vehicular mobility continue to plague the downtown and west Salem areas near the existing bridges. There is a need to address vehicular mobility and traffic congestion immediately and independent of decisions related to the proposed Willamette River crossing.

On November 13, 2017, the Salem City Council directed staff to hire a consultant team to facilitate a four-member Task Force to develop a list of short-, medium-, and long-term projects and a funding strategy that, when implemented, would reduce traffic congestion and improve vehicular mobility. (See Appendix A.) The consultant prepared for and facilitated six Task Force meetings. The four members of the Task Force consisted of Mayor Chuck Bennett and three mayor-appointed councilors: Councilor Cara Kaser, Councilor Chris Hoy, and Councilor Jim Lewis.

Task Force Goal

Investigate potential ways for the City to relieve congestion in the project area and advise the City on policies and actions to improve traffic flow.

While improving non-vehicular modes of transportation (including pedestrian, bicycle, and public transit) and considering the possibility of other travel demand management measures were discussed among the Task Force members, the work of this Task Force was focused on identifying transportation infrastructure projects and policies to improve vehicular mobility and ways to reduce vehicular congestion within the study area. The study area and key corridors are pictured on the following page.



Project Study Area

2. TASK FORCE MEETINGS

A key goal of the project was to provide a focused and neutral environment to fully investigate and evaluate the transportation challenges in the project area. In order to ensure a balanced and objective process, the consultant team gathered information, analyzed issues, and provided options for the Task Force to consider.

The Task Force actively engaged in reviewing both the technical analysis and public comments throughout the course of the project. The two-hour Task Force meetings began with a presentation by the lead transportation engineer, followed by informal questions and discussion by Task Force members. A facilitator provided general structure, including a brief recap of the previous meeting content and summary of key decisions or conclusions at the end of each meeting. City staff were available for questions and to clarify issues as they arose.

Task Force members provided feedback through discussion with each other and the consultant team. The audio from the meetings was recorded and posted on the City website along with a meeting agenda and summary. At the fifth meeting, the consultant presented a list of possible improvements and Task Force members were asked to take a week to provide input on the improvements. The input was reviewed by the Task Force members at the final meeting and the resulting decisions provided the basis for this final report and recommendations.

Appendix B provides an overview of existing and projected future traffic conditions in the Study Area. Appendix C contains information regarding how potential projects were developed. Appendix D summarizes public survey comments. Appendices E through J contain the agendas and handout materials from each of the six Task Force meetings.

3. TASK FORCE CONCLUSIONS

Based on the materials presented and discussions at the meetings, the Task Force made the following conclusions:

TRAFFIC CONDITIONS

Existing traffic congestion is directly related to vehicle flows to, from, and across the Center Street and Marion Street bridges. During morning and evening commutes, traffic on the bridges nears or exceeds capacity in many areas. This produces long vehicle queues on Wallace Road, Highway 22, and Glen Creek Road leading to the Center Street Bridge in the peak morning traffic commuting hours. In the evening peak traffic commuting hours, Commercial Street, Marion Street, and Front Street leading to the Marion Street Bridge are also congested with long vehicle queues. An additional challenge to address congestion on and near the Salem bridges is that there are no nearby alternative routes to cross the Willamette River. The nearest alternative Willamette River crossings are located in Newberg (located 26 miles to the north) and in Independence (located 12 miles to the south).

The population of Salem and the region is projected to grow more than 20 percent over the next 20 years. With the increase in population, vehicle congestion in the study area is also projected to increase. This will result in longer travel times, longer vehicle queues, and an increase in the duration of the morning and evening peak commutes over the two bridges.

With heavy congestion already present in the study area, a lack of alternate river crossing routes in Salem, and an increase in projected traffic in the next 20 years, vehicle delays and travel times will continue to degrade if nothing is done to relieve the congestion.

PROJECT IDEAS

To relieve vehicle congestion in the study area, the Task Force considered potential capital improvements that would increase vehicular traffic flows across the Marion and Center Street bridges, including improvements to roads leading to and from the bridges. After evaluating many project ideas to relieve congestion in this area, it was concluded that there is no single project at a specific location that would significantly reduce congestion across the Marion Street and Center Street bridges. To significantly reduce congestion, a set of capital projects must be packaged together. These “packages” of project ideas were called Solution Packages, each of which constituted potential major, long-term capital projects. In total, seven Solution

Packages were evaluated, four Solution Packages to help relieve congestion on the Marion Street Bridge and three Solution Packages for Center Street Bridge.

After performing queuing analysis, intersection analysis, and an evaluation of project feasibility and impacts, three of the seven Solution Packages were recommended for elimination by the consultant, which was supported by the Task Force. Further detailed analysis and cost estimates were prepared for the four remaining Solution Packages. The Task Force then narrowed down the four Solution Packages to two, one for the Center Street Bridge (referred to as Center Street Bridge Solution Package #1 in meeting documents) and one for the Marion Street Bridge (referred to as Marion Street Bridge Solution Package #4 in meeting documents).

The Center Street Bridge Solution Package involves widening Wallace Road NW to three lanes southbound; widening the eastbound bridge approach structure; adding a fifth lane on the bridge; making modifications to the north and southbound off-ramps to Front Street NE and addressing downstream bottlenecks at intersections of Front/Commercial/Division streets and Front/Commercial/Trade streets. If constructed, this option is estimated to cost between $100 and $115 million if conducted in conjunction with projects to address westbound traffic (Marion Street Bridge). If not conducted in conjunction with Marion Street Bridge projects, the cost increases by approximately $19 to $22 million. Initially the Center Street package would reduce peak travel times up to 50 percent. Travel times would return to pre-construction levels approximately ten years following project completion.

The Marion Street Bridge Solution Package involves adding a third right turn lane on Commercial Street; adding an additional westbound lane on Marion Street NE by removing parking; widening the bridge approaches; adding a fifth lane on the bridge; removing the pedestrian sidewalk on the bridge; and widening Wallace Road NW to three northbound lanes. If enacted, this option is estimated to cost between $55M and $65 million. Initially the Marion Street package would reduce peak travel times 30 and 50 percent for vehicular traffic originating from north and east of the Marion Street Bridge, respectively. Travel times for traffic originating from south of the bridge would remain unchanged. All travel times would return to pre-construction levels less than ten years following project completion.

Currently, Salem does not have adopted standards for travel times between points and has not established a threshold above which a travel time is considered unacceptable. Salem does have adopted standards for roadways and intersections related to volumes and capacities. Either of the preferred Solution Packages would result in improvements to these standards, but traffic growth over time would erode these gains.

In addition to the capital costs of each of the project packages, there are also social, environmental, and economic costs. This would include, for example, property acquisition and condemnation; business and travel disruption; impacts to public parks and recreation; and construction involving the regulated floodplain, over-water work, and the Willamette Greenway. Quantifying these costs was outside of the scope of the Task Force.

Policy ideas beyond infrastructure improvements were also considered, such as growth management plans and travel demand management (TDM) policies. For example, a congestion pricing (tolling) program could be effective in reducing vehicle congestion at peak hours in the study area. New TDM policies such as commute trip reduction programs could also create additional capacity. Programs could include voluntary change in employment start and end times, incentives to use available ridesharing programs, and increased transit frequency during peak hours.

4. TASK FORCE RECOMMENDATIONS

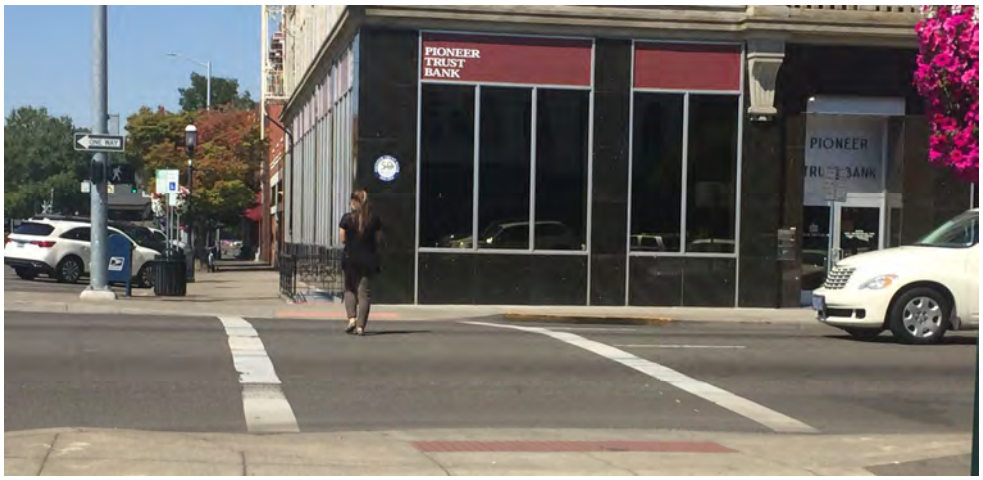
In the end, the Task Force did not reach consensus on recommending any long-term major capital improvements. They did, however, agree to recommend a list of short-term and medium-term projects, policies, and programs that may provide benefits at specific locations or to a limited number of users. These short-term and medium-term recommendations include: intersection modifications; additional guide signage; enacting turn restrictions at certain times of day; providing a park and ride/walk/shuttle facility at Wallace-Marine Park; creating a circulator/trolley program; and implementing Intelligent Traffic System technologies. Examples of the short- and medium-term recommendations are illustrated below. Other recommended projects, policies, and programs are included in the table following.

Install travel time signage in the study area.

Install variable speed limit signs on Highway 22.

Improve guide signs leading up to and on the bridges

Remove the barrier on Musgrave Avenue east of Wallace Road to allow traffic to access Wallace Marine Park.



Optimize signal timing and investigate Adaptive Signal Timing; this could include increasing pedestrian delays at signalized intersections during peak periods

Other Recommended Project Ideas

Operations

Improve response to emergencies on the bridges

Infrastructure

Construct Marine Drive

Add additional through and/or right turn lanes on the east and westbound Taggart Dr approaches at Wallace Road

Close the north crosswalk at Front St/Court St

Limit left turns to/from Wallace Road either by installing a median barrier or by instituting peak-hour turn restrictions; also consider prohibiting left turns at Wallace Rd/Taggard Rd intersection during peak congestion periods.

Travel Demand Management (TDM)

Encourage employers to implement flexible work hours

Work with employers to develop and implement incentives for employees to bike, walk, transit, and carpool

Provide downtown circulator bus or trolley

Provide park and walk/bike/shuttle services at Wallace Marine Park

Develop and implement parking management strategies

Policies/Plans

Develop a Comprehensive Growth Management Plan

APPENDICES

A. COUNCIL MOTION TO FORM TASK FORCE

COUNCIL STAFF REPORT FOR NOVEMBER 13, 2017

Staff Report

File #: 17-545
Version: 1

Date: 11/13/2017
Item #: 5. c.

TO: Mayor and City Council

THROUGH: Steve Powers, City Manager

FROM: Chuck Bennett, Mayor

SUBJECT:

Creation of a Council Task Force to evaluate options for reducing traffic congestion and improving vehicular mobility around the Marion and Center Street bridges.

Ward(s): Ward 1, 2
Councilor(s): Kaser, Andersen
Neighborhood(s): CANDO, SCAN, West Salem

ISSUE:

I move that the City Council create a four-member Council Task Force to evaluate options for reducing traffic congestion and improving vehicular mobility around the Marion and Center Street bridges. I further move that City Council direct the City Manager to fund the Task Force's activities, and designate Public Works Department staff to support the Task Force with data collection and analysis, and contract consultant assistance.

SUMMARY AND BACKGROUND:

Over the past decade, regional transportation experts, City staff, and the community have been considering options and alternatives related to a new Willamette River crossing. The process has been lengthy and controversial. When completed, the process will yield a Final Environmental Impact Statement for a new facility, *not* the facility itself. We understand that even with a Final EIS in place, it may take another decade or more to fund, design, and begin construction of a new bridge.

In the meantime, congestion and vehicular mobility continue to plague the downtown and inner west Salem areas around the existing bridges. There is a need to address vehicular mobility and traffic congestion immediately and independent of decisions related to the Willamette River crossing. If approved by Council, the charge of the Task Force will be to study the issues and develop a list of short-, medium-, and long-term projects and a funding strategy that-when implemented-will reduce traffic congestion and improve vehicular mobility.

While acknowledging the importance of improving non-vehicular modes of transportation-including pedestrian, bicycle, and public transit-and the possibility that other travel demand management

measures-such as changed work hours-the work of this Task Force is to be directed primarily at identifying opportunities for improving vehicular mobility and ways to reduce vehicular congestion within the study area.

The Task Force, if authorized, will be a City Council committee. Member shall be appointed by the Mayor, pursuant to Section 22 of the Charter.

The idea was discussed with staff prior to developing the motion. Based on these discussions, the following work scope outline was developed. The work scope will be further refined when the Task Force gets underway.

1. Schedule, Study Boundaries, and Public Involvement
    a. Project Schedule
        i. Begin: December 2017
        ii. End: June 2018
    b. Study Boundaries
        i. North: Union Street NE/Orchard Heights Road NW
        ii. South: Mission Street SE/Edgewater Street NW
        iii. East: 12th Street SE/NE
        iv. West: Wallace Road NW
    c. Public Involvement
        i. Public involvement in this effort will be limited to attendance at the Task Force meetings. Robust public review and comment on recommended projects and funding will be expected when the recommendations are proposed for inclusion in infrastructure plans and the *Capital Improvement Program*.
2. Work Scope
    a. Existing Conditions (Within the study area boundaries)
        i. Compile studies and projects completed within the last 20 years.
        ii. Compile active studies and projects with estimated completion dates.
        iii. Compile active studies, projects, and proposals from private groups such as Main Street.
        iv. Map all current traffic volume, speed, and queueing data.
    b. Future Conditions (Using results from existing travel demand models and limited to the study area boundaries)
        i. Map future traffic volume, speed, and queueing data.
    c. Policy Analysis (Within the study area boundaries)
        i. Review adopted policies in the *Salem Transportation System Plan* related to mobility, congestion management, and parking.
        ii. Review adopted policies in the *Salem Comprehensive Parks Master Plan* related to parks and their uses.
        iii. Review adopted policies, programs, and planned projects in the Riverfront/Downtown and West Salem Urban Renewal Area Plans.
        iv. Review existing practices and policies related to providing on-street parking and alternate modes of transportation.
        v. Recommend changes to adopted policies, practices, and projects that

may facilitate improved traffic congestion and vehicular mobility.

d. Idea Development (Based on the information developed above)
    i. Develop ideas to reduce traffic congestion and vehicular mobility in the short- (within 5 years), medium- (within 10 years), and long-term (longer than 10 years).
    ii. Select the most promising ideas for detailed traffic engineering analysis
    iii. Conduct traffic engineering analysis on the selected ideas that include the following.
        1. Estimated immediate improvement in traffic flow, delay, and queueing.
        2. Estimated future improvement in traffic flow, delay, and queueing.
    iv. Develop planning-level cost estimates for the selected ideas.
e. Financial Plan
    i. Develop a funding strategy to implement the selected ideas.
f. Recommendations and Reporting
    i. Develop a list of recommendations that includes the following:
        1. Changes to adopted policies, practices, and projects that facilitate improved traffic congestion and vehicular mobility.
        2. Projects that facilitate improved traffic congestion and vehicular mobility in the short-, medium-, and long-term.
        3. A funding strategy to implement the selected ideas.
        4. A prioritized listing of areas recommended for further research, presented in the form of questions to be answered.
    ii. Draft a report to the City Council documenting the recommendations.

Attachment: None

B. OVERVIEW: TRAFFIC CONDITIONS

Today, residents and commuters in West Salem deal with significant congestion on Wallace Road, Glen Creek Road, and Edgewater Street during the morning commute period. Queued vehicles on Wallace Road routinely back up past the Orchard Heights Road intersection. During the evening commute period, congestion, queuing and long travel times exist on Commercial Street NE, Marion Street NE, Front Street, and Ferry Street SE. Traffic can be observed backing up on many of the downtown surface streets, impacting downtown businesses. The following sections describe the existing morning and evening commute hours.

MORNING COMMUTE CONDITIONS

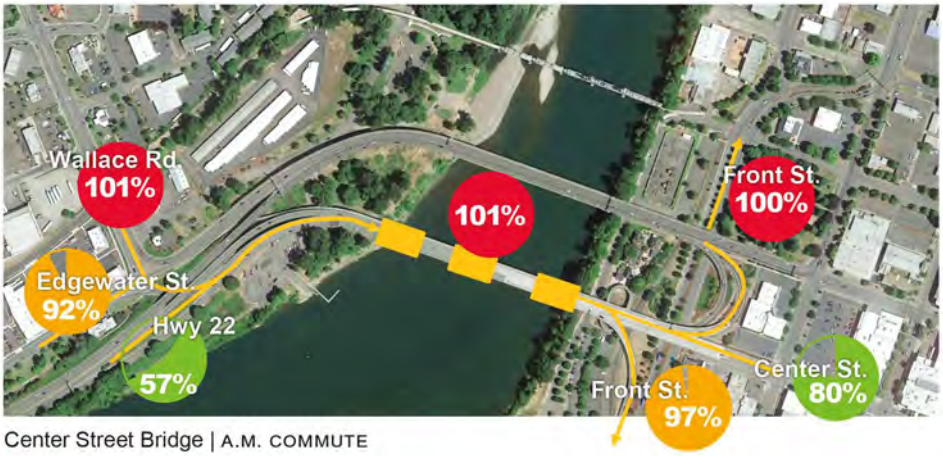
During the morning commute period, traffic on Wallace Road, Orchard Heights Road, Glen Creek Road, and Highway 22 is often highly congested. Below is a table showing the average travel time on these roadways during the morning peak traffic hours.

Average AM Peak Travel Metrics			
Map	**Road**	**Travel Time**	**Travel Speed**
A to E	Wallace Road	11 mins	10 mph
B to E	Orchard Heights Road	10 mins	10 mph
C to E	Glen Creek Road	7 mins	9 mph
D to E	Highway 22	5 mins	15 mph

Congestion on Wallace Road southbound during the AM peak period

The following two figures show the estimated vehicle queues, intersection performance compared to standards, and the percent of capacity on the Center Street Bridge during the AM peak period. As shown, the intersections on Wallace Road leading to the Center Street Bridge fail to meet standards and the Wallace Road and Edgewater Street approaches onto the Center Street Bridge are near or over capacity.

Measures Of Road Capacity Used During Weekday Morning Peak Traffic Hours



Center Street Bridge | A.M. COMMUTE

- At or over capacity
- Near capacity
- Below capacity

Capacity is the maximum number of vehicles that a street can accommodate based on street design characteristics like number and width of lanes, driveway locations, traffic control (signals, stop signs, etc.), intersection spacing, etc. Generally, when the number of vehicles reaches 85% to 95%, delays and queuing become significant and performance is reduced.

Morning Intersection Operations

- Fails to meet standards
- At or near standards
- Vehicle queuing (back-ups) during peak traffic hours

Standards for the streets and intersections in the study area are set by ODOT and the City of Salem. The standards set by ODOT and the City range from 85% to 95% of available capacity and an average intersection delay of up to 80 seconds

EVENING COMMUTE CONDITIONS

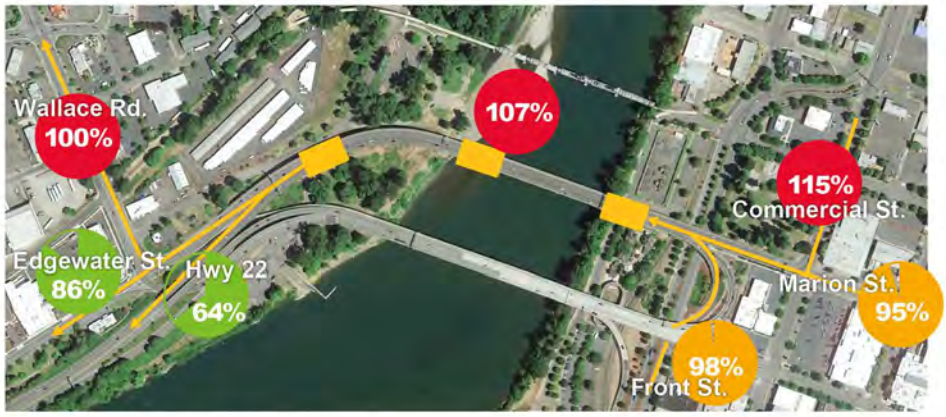
During the evening commute period, traffic on Commercial Street, Marion Street, and Front Street is often highly congested as vehicles wish to travel to west Salem using the Marion Street Bridge. Below is a table showing the average travel time on these roadways during the evening peak traffic hours.

Average PM Peak Travel Metrics			
Map	**Road**	**Travel Time**	**Travel Speed**
A to E	Commercial Street	10 mins	9 mph
B to E	Marion Street	11 mins	4 mph
C to E	Ferry Street to Front Street	9 mins	7 mph
D to E	Liberty Street to Front Street	8 mins	7 mph

Congestion on Commercial Street southbound during the PM peak period

The following two figures show the estimated vehicle queues, intersection performance compared to standards, and the percent of capacity on the Marion Street Bridge during the PM peak period. As shown, the intersections on Marion Street leading to the Marion Street Bridge fails to meet standards and all the three approaches onto the Marion Street Bridge are near or over capacity.

Measures Of Road Capacity Used During Weekday Evening Peak Traffic Hours



Marion Street Bridge | P.M. COMMUTE

- At or over capacity
- Near capacity
- Below capacity

Evening Intersection Operations

- Fails to meet standards
- At or near standards
- Vehicle queuing (back-ups) during peak traffic hours

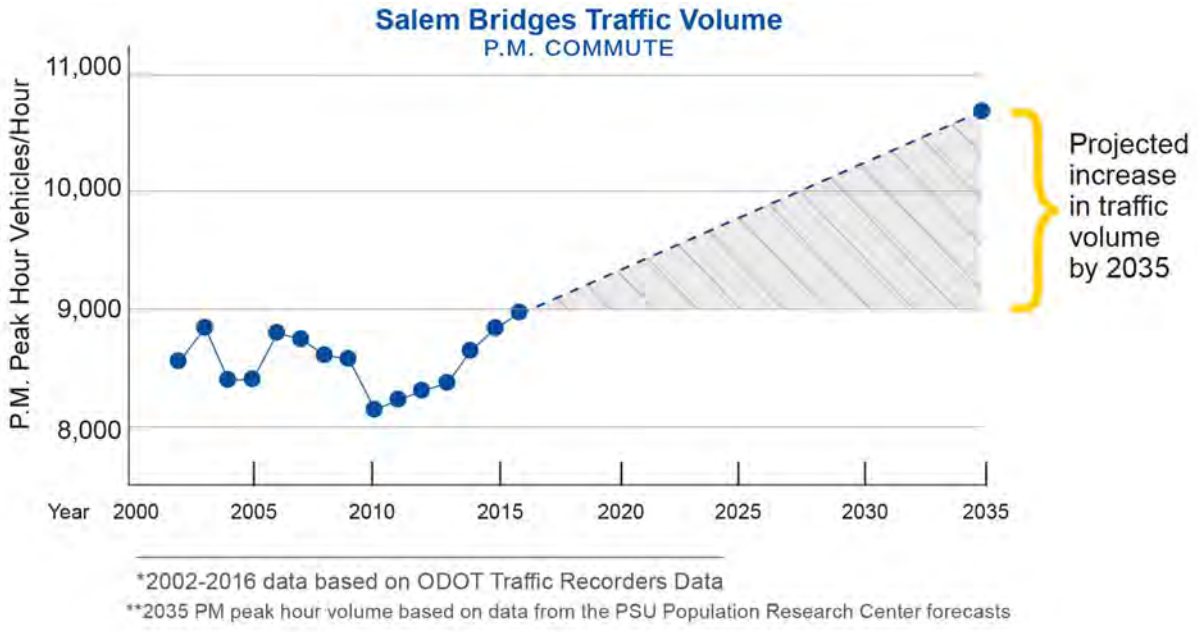
EXISTING TRAFFIC CONDITIONS SUMMARY

The congestion discussed above is directly related to vehicle flows to, from, and across the Marion Street and Center Street bridges. During morning and evening commutes, traffic on the bridges nears or exceeds capacity in many areas as shown in the previous figures. To reduce or relieve congestion in the study area, capacity must be increased in multiple key areas and/or traffic volume must be decreased.

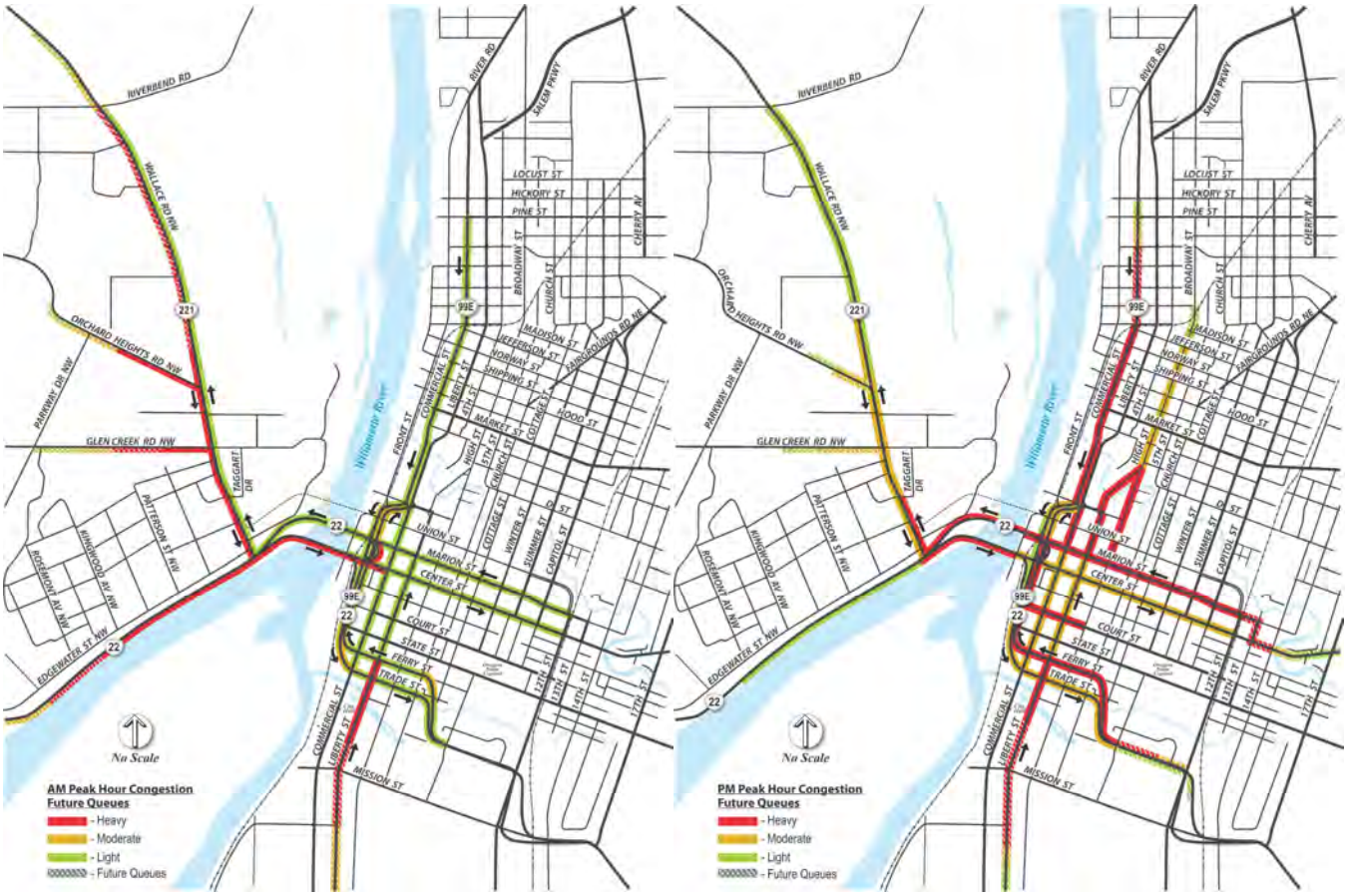
An additional challenge to address congestion on and near the Salem bridges is that there are no nearby alternative routes to cross the Willamette River. The nearest alternative Willamette River crossings are located in Newberg (located 26 miles to the north) and in Independence (located 12 miles to the south).

FUTURE TRAFFIC CONDITIONS

According to data from the Portland State University Population Research Center (PRC), the population of Salem and the region is projected to grow more than 20% over the next 20 years. Most of residential growth is expected to occur west and south of downtown. With the increase in population, vehicle congestion in the study area is also projected to increase (see graph below). The projected traffic increase was estimated using the Salem-Keizer regional travel demand forecasting model which is maintained by the Salem-Keizer Area Transportation Study (SKATS). This model estimates future traffic based on the population estimates from the PRC. If no efforts are made to reduce congestion, this will result in longer commutes during the morning and evening peak periods than what exists today.



The two figures below show the estimated increased congestion in future year, 2035. The hatched segments show where traffic is expected to increase from current conditions.



Future AM and PM Queues

With heavy congestion already present in the study area, a lack of alternate river crossing routes in Salem, and an increase in projected traffic in the next 20 years, vehicle delays and travel times will only continue to degrade if nothing is done to relieve the congestion.

C. DEVELOPING SOLUTION PACKAGES

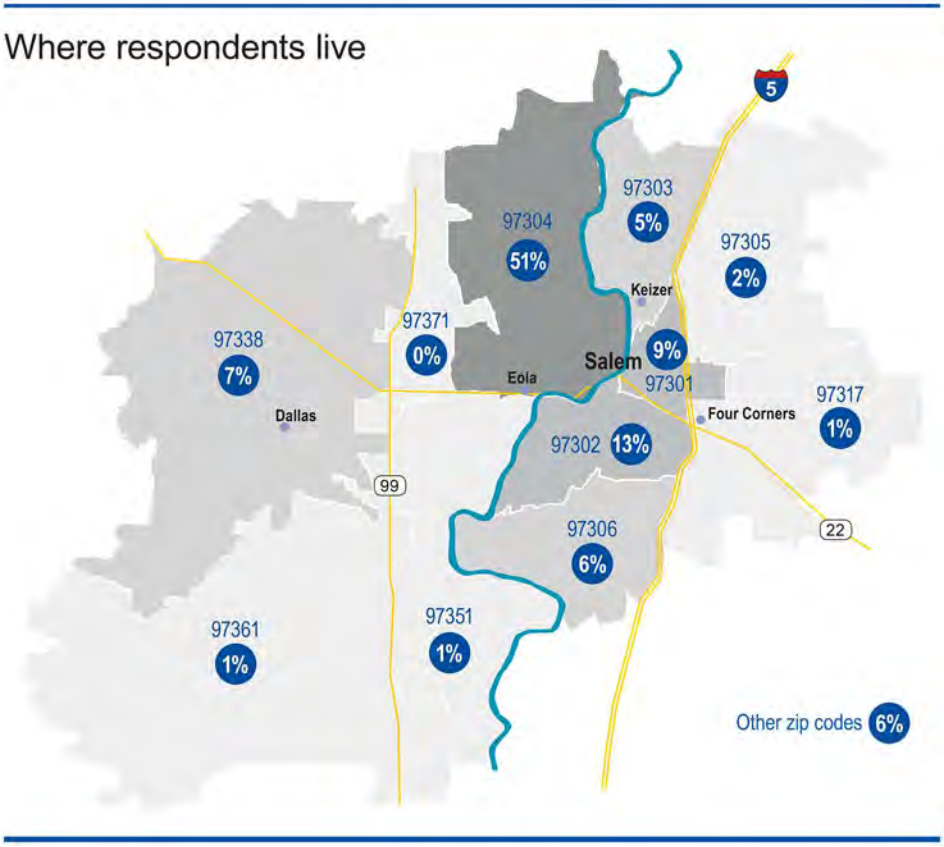
To begin developing a list of projects that would reduce traffic congestion and improve vehicular mobility, many sources were referenced. After project ideas were identified, many were evaluated and analyzed. Project ideas were categorized by short-term, medium-term, and long-term ideas. During the analysis, it was concluded that there was no single project at a specific location that significantly reduced congestion across the Marion Street and Center Street bridges. In order to significantly reduce congestion, a set of single projects must be packaged together. These "packages" of project ideas were called Solution Packages. In total, seven Solution Packages were created, four Solution Packages to help relieve congestion on the Marion Street Bridge and three Solution Packages for Center Street Bridge.

PROJECT SOURCES

The sources for project ideas included:

- public survey
- previous studies
- consultants and City staff input
- Task Force members' input

The public survey was available to from February 24 to March 10, 2018. During this time the City of Salem provided online and hard copy surveys to residents asking for ideas to relieve traffic congestion in the project area. Approximately 1,300 people responded to the survey, with over half of them living in west Salem as shown in the figure on the following page. A summary of respondents' comments of this survey can be found in Appendix D.



According to the survey, 72% of respondents own property in Salem and 77% work in Salem. The table below shows how respondents get around Salem and how often they use that mode of transportation.

	Always	Mostly	Sometimes	Rarely	Never
Car, truck or motorcycle	73%	23%	4%	–	–
Bicycle	1%	1%	13%	20%	66%
Walking	1%	3%	37%	23%	26%
Bus	–	–	6%	13%	80%

Previous studies completed for the City of Salem were also consulted for possible project ideas. These studies provided past recommended projects in the study area that have not yet been built. Some of the studies also provided traffic data and transportation operational and forecasting tools that aided in the evaluation of project ideas. The previous studies are listed below.

- Wallace Road Local Access & Circulation Study - 1997
- Bridge Head Engineering Study (BHES) – 1998

- West Salem Gateway Area Refinement Plan - 2005
- Salem Willamette River Crossing Alternate Modes Study – 2010
- Salem River Crossing Draft EIS Alternative 2A (EIS) - 2012
- Central Salem Mobility Study – 2013
- West Salem Business District Action Plan - 2015
- City of Salem Transportation System Plan (TSP) – Updated 2016
- MWVCOG Regional Transportation System Plan (RTSP) – Updated 2016

PROJECT ANALYSIS

Project ideas that were considered included infrastructure projects such as building intersection improvements at major intersections in the study area, adding additional lanes on existing roadways in the study area, enacting turn restrictions at certain times of day, adding lanes on the Marion Street and Center Street bridges, and building new bridge exit and entrance ramps and connections.

Project ideas also included multimodal programs such as providing a park and ride/walk/shuttle facility at Wallace-Marine Park, creating a downtown circulator/trolley program, and implementing downtown parking management strategies.

Many of the infrastructure project ideas were analyzed to see whether they could increase capacity. The Salem-Keizer regional travel demand forecasting model is maintained by the Salem-Keizer Area Transportation Study (SKATS) and was used to analyze the impact that a project could have on the study area.

The analysis showed that each project only improved traffic operations in the immediate vicinity, and that there was no single project at a specific location that significantly reduced congestion across the Marion Street and Center Street bridges.

To significantly reduce congestion, a set of capital projects must be packaged together. These "packages" of project ideas were called Solution Packages, each of which constituted potential major, long-term capital projects. In total, seven Solution Packages were created, four Solution Packages to help relieve congestion on the Marion Street Bridge and three Solution Packages for Center Street Bridge. Refer to Appendix G for descriptions of each Solution Package.

After performing queuing analysis, intersection analysis, and an evaluation of project feasibility and impacts, three of the seven Solution Packages were recommended for elimination by the consultant, which was supported by the Task Force. Further detailed analysis and cost

estimates were prepared for the four remaining Solution Packages. The Task Force then narrowed down the four Solution Packages to two, one for the Center Street Bridge (referred to as Center Street Bridge Solution Package #1 in meeting documents) and one for the Marion Street Bridge (referred to as Marion Street Bridge Solution Package #4 in meeting documents).

The Center Street Bridge Solution Package involves widening Wallace Road NW to three lanes southbound; widening the eastbound bridge approach structure; adding a fifth lane on the bridge; making modifications to the north and southbound off-ramps to Front Street NE and addressing downstream bottlenecks at intersections of Front/Commercial/Division streets and Front/Commercial/Trade streets. The Center Street Bridge Solution Package #1 is shown below. In the figure, vph refers to vehicles per hour and indicates the capacity that the given improvement adds or subtracts to the existing capacity. This Solution Package was estimated to cost $100 - $137 million.

Solution Package - Center Steet Bridge #1

The Marion Street Bridge Solution Package involves adding a third right turn lane on Commercial Street; adding an additional westbound lane on Marion Street NE by removing parking; widening the bridge approaches; adding a fifth lane on the bridge; removing the pedestrian sidewalk on the bridge and widening Wallace Road NW to three northbound lanes. The Marion Street Bridge Solution Package #4 is shown below. In the figure, vph refers to vehicles per hour and indicates the capacity that the given improvement adds or subtracts to the existing capacity. This soltuion package was esimated to cost $55-$65 million.

Solution Package - Marion Steet Bridge #4

SOLUTION PACKAGES SUMMARY

The two Solution Packages discussed above were analyzed and found to initially reduce peak travel times by approximately 30 - 50 percent for some of the study area streets. However, travel times would return to pre-construction levels approximately ten years following project completion. Currently, Salem does not have adopted standards for travel times between points and has not established a threshold above which a travel time is considered unacceptable. Salem does have adopted standards for roadways and intersections related to volumes and capacities. Either of the preferred Solution Packages would result in improvements to these standards, but traffic growth over time would erode these gains.

In addition to the capital costs of each of the project packages, there are also social, environmental, and economic costs. This would include, for example, property acquisition and condemnation; business and travel disruption; impacts to public parks and recreation; and construction involving the regulated floodplain, over-water work, and the Willamette Greenway. Quantifying these costs was outside of the scope of the Task Force.

Seismic retrofits are likely for the Center Street Bridge but unlikely for the Marion Street Bridge. The Oregon Department of Transportation (ODOT) will be conducting a study to determine whether the Center Street Bridge needs to be seismically retrofitted and, if so, the cost for retrofitting. Depending on the results of the study, ODOT may retrofit the bridge; $60 million was identified in legislation towards this work. ODOT has determined it will not retrofit the Marion Street Bridge because doing so is not cost-effective.

D. SUMMARY OF PUBLIC SURVEY COMMENTS

Compiled Comments to the ***Share Your Ideas*** Questionnaire

From February 24 to March 10, 2018, the City of Salem distributed an online and hard copy questionnaire to residents asking for their ideas to relieve traffic congestion in the project area. The following compilation of comments, edited for clarity, provides detailed information about the suggested ideas. For a full list of the verbatim comments, contact Judy Postier at jpostier@cityofsalem.net. This document is a compilation of public comments and reflects the tone and style of the participants. Variations in street names and directional descriptions are common and do not reflect the City of Salem style standards.

TRAFFIC LANES

General Comments

1. Build more left-turn lanes and right-turn lanes.
2. Discourage left turns except at traffic lights.
3. Change more one-way streets to two-way streets downtown.
4. Make turn outs for bus stops so that traffic is not impeded.
5. Make left turns during peak hours illegal and make the lights blink.
6. Eliminate merge lanes.
7. Narrow traffic lanes to slow traffic.
8. Increase the number of lanes going north to south and east to west through Salem.

Bridge Lanes

1. Increase capacity of the bridges by widening bridges or adding a second tier to bridges.
2. Convert bike lanes to travel lanes on bridges.
3. Add more lanes to move traffic off the bridges.
4. Implement reversible travel lanes.
5. Make both bridges dual direction. Change the number of lanes to accommodate peak hours.
6. Create fly-overs that funnel traffic into the proper bridge exit lanes.
7. Do not allow any lane changes on the bridges. Have designated lanes for specific destinations that must be chosen before a vehicle enters the bridge.
8. Add back the lanes to Front St. heading south.
9. Develop an updated incident response plan to clear crashes and accidents quickly.

Center Street Bridge

1. Allow a free right turn from Center to Front.
2. Expand exit to Front Street to two lanes; do the same on southbound side to Commercial Street.
3. Narrow northbound Front Street to one lane before the bridge.
4. Make the off-ramp to Front Street a merge lane, rather than a traffic signal.
5. Extend the Jersey barrier for the far left lane, completely isolating that lane, and make it an exit-only option to Front Street. (Drivers from Wallace that want to go to north will have to use Liberty and Division to connect to Commercial Street northbound).
6. Add a couple of westbound lanes for express access to Edgewater.

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7. Extend low barriers on the bridge between the lanes coming from Wallace and the lanes coming from the highway so cars from Wallace can see the traffic before they start changing lanes.
8. Allow traffic to turn right from Edgewater onto the bridge on the red light at anytime except 6 a.m. to 9 a.m. Monday – Friday.

Marion Street Bridge

1. Block all lane changes until after Wallace Road, requiring drivers to select the proper lane before entering the bridge.
2. Designate the left two lanes for feeding onto Highway 22, and right two lanes for west Salem.
3. Do not allow traffic from Front Street south to cross three lanes of traffic onto exit for Wallace Rd.

Streets

1. Parking Downtown
    a. Build more parking downtown so traffic doesn't back up from people looking for a place to park.
    b. Eliminate double parking downtown by vehicles off-loading goods which blocks traffic lanes at peak times. Have them use the alleys behind the businesses.

2. Commercial Street
    a. Provide a free right-turn lane to enter the Marion Street bridge.
    b. After a certain point, make it illegal to switch from left lane to right lane (to turn to get onto bridge).
    c. Have three southbound lanes turn right on to Marion Street Bridge.
    d. South Commercial/Liberty is vastly under capacity. Look at adding a third lane in each direction between City Hall and Madrona.
    e. Change markings for southbound right turns on Commercial at base of Marion Street bridge. Right-most lane should only turn into first lane on bridge, allow combined southbound through/right lane to turn into next two lanes on bridge.

3. Center Street: Allow two left-turn lanes at Center St/Liberty St. and connect back to Commercial at Division where the new Salem Police Department will be built.

4. Union Street: Allow cars heading east on Union to cross Commercial (change current bike lane to bike/car share lane).

5. Marion Street
    a. At High and Marion, create a dedicated right from southbound to westbound; allow free flow during peak hours.
    b. Make the far right lane of Marion Street a right turn only at each downtown intersection. Eliminate problem of people using the far right lane to bypass traffic in the through lanes.
    c. The new turn lane from High St. onto Marion St. needs to have the two lanes farther north on High St. to split the traffic before the intersection with Union Street.
    d. Reduce the number of left-turn lanes from Church St. to Marion St. to only one so traffic flows better on Marion Street.
    e. Eliminate the bike lane on High Street and have both southbound lanes allow turns. Cars driving south at Marion Street get so backed up at rush hour because everyone needs to turn from the right lane.
    f. Build more sky bridge connections crossing over Marion Street, so that cars are not hampered by people using the crosswalks and stalling traffic turning left off of Marion.

6. Highway 22/Wallace/Edgewater
    a. Create an active transportation management corridor along Highway 22 with variable speed limits to manage speeds during congestion and during crashes and prevent secondary crashes.
    b. Highway 22 traffic not getting off at Rosemont and heading toward Dallas should route to Chemeketa onto Front to enter the Marion St. Bridge from the south-most lane.
    c. Wallace:
        i. Add right-turn lanes at intersections.
        ii. Install median barrier in the center of Wallace Rd from Hope Ave to Edgewater St. and allow turns only at lights.
        iii. Make six lanes wide from Harritt Dr. to Edgewater.
        iv. Widen Wallace Rd and extend widened area north of Brush College Rd.

    d. Revamp interchanges off Highway 22 at Rosemont, Wallace Road or even a new one at Eola.
    e. Widen the westbound Rosemount exit on Highway 22.

7. Other Streets
    a. Close the lane next to Salem First Baptist on Marion Street.
    b. Fix the dangerous crossing from Glen Creek to Parkway to Cascade.
    c. Do not allow turning off and on Mission Street during high traffic time.
    d. Make State Street one-way going east.
    e. Mission Street cannot handle the amount of traffic that is being pushed on to it.

TRAFFIC SIGNALS AND INTERSECTIONS

General

1. Improve timing and use road sensors.
2. Time crosswalks independent of traffic signals.
3. Pedestrian crossing:
    a. Make two light cycles without allowing for pedestrian crossing.
    b. Time lights for walkers and cyclists instead of drivers.
    c. Remove pedestrian crossings that impede traffic.
4. Create roundabouts

Traveler information (signage)

1. Install traffic advisory signs on I-5 and Highway 22 to warn people of traffic congestion.
2. Improve signage and lane markings on the bridges to/from west Salem, to get drivers to slow down and be aware of what is ahead.
3. Improve signage to let people know of alternate routes through town.
4. Install traffic information signs at entrance of bridges to inform drivers of issues and time of anticipated delay.

East Salem

1. Commercial Street:
    a. Reduce the number of lights.
    b. Make longer green lights during peak hours.

    c. Install an advance-timed near-side traffic signal for southbound Commercial St. at Division.
2. Improve east-west light timing between Capitol and High.
3. Front Street:
    a. Install a grade-separated pedestrian crossing.
    b. Front at Court: Close the north pedestrian crossing.
    c. Reconsider an underpass pedestrian crossing to Riverfront park to allow continuous southbound flow on Front Street.
    d. Reduce the number of traffic lights.
    e. Remove the traffic light from the ramp off the Center Bridge to Front Street NE.
4. Union Street: Remove most recently added light.
5. Intersection of Center and Liberty: To improve bridge flow, remove pedestrian crosswalk on north leg, or eliminate dual left-turn option from the second lane, or institute part-time turn restrictions for the second lane during peak times.
6. Intersection of Liberty and Trade: Remove pedestrian crosswalk on the west leg where dual left-turn lanes are.
7. Intersection of Liberty and Division: Separate northbound traffic, let straight northbound traffic flow as is, but stop the northbound left-turn traffic.
8. High Street: Install a longer right-turn lane on southbound High Street where Fairgrounds Rd peels off to Division at Boon's Treasury. (sic)

West Salem

1. Wallace Street NW
    a. Create a 2nd Street crossing at Wallace.
    b. Create a pedestrian crossing of Wallace Road from 2nd Street to the Union Street Bridge rail path.
    c. Eliminate crosswalks on Wallace Road at the intersection of Edgewater Street and construct a low-cost bicycle/pedestrian bridge over Wallace Road, adjacent to existing OR 22 westbound bridge.
    d. Improve light timing to move traffic.
    e. Close the entrance to Dutch Bros on Wallace Road.
    f. Convert Wallace and Glen Creek intersection into a roundabout.
    g. Remove the traffic lights at Edgewater St. NW and Wallace Rd. and close the lane that connects Marion St. Bridge to Edgewater St. NW.
    h. Westbound movements out of Roth's onto Wallace Road (between Burger King and US Bank) must be restricted to right-turns only.
    i. Westbound movements from Taybin Road onto Wallace Road must be restricted to right-turns only.
    j. Add right-turn lanes at intersections.
2. Orchard Heights and Wallace intersection: Improve and fix timing of lights.
3. Orchard Heights and Glen Creek intersection: Make "no turn on a red light."

BYPASS/ALTERNATE ROUTES/ON-OFF RAMPS

General

1. Improve signage.
2. Reconfigure bridge access.
3. Build the Salem Beltline.
4. Union Street Bridge: Upgrade for vehicles. Use all the time, or some of the time for cars, or use for trolley service (see Transportation Demand Management below)

5. Create alternate routes for through traffic. For example, route traffic from coast or 99 to south Commercial, north Parkway, or ultimately, I-5.
6. Add “back-of-queue detectors” for ramps off bridge to both Front Street ramps, allowing bridge through-traffic to downtown to better use all lanes on bridge.
7. Conduct seismic upgrades to bridges.

West Salem

1. Open Musgrave to vehicles; allow vehicles to go through the park.
2. Build Marine Drive (from 5th Avenue to Harritt Drive).
3. Connect all streets west of Wallace Road.
4. Extend Murlark Avenue and/or Patterson Street to the north and connect to Glen Creek Road.
5. Create bypass from Edgewater in south to north of Riverbend Rd.
6. Close Edgewater at Wallace. Edgewater St. should only be accessible via the Rosemont Highway 22 exit. The light at Wallace and Edgewater stops the flow of traffic going east over the bridge and in turn, backs up Wallace.
1. Revise “back of queue detector” for Rosemont ramp to ensure no queues on Highway 22 westbound.

East Salem

1. Turn Front Street north of the bridges into a bypass road that routes traffic under the bridges.

Center Street Bridge

1. Build a free-flow ramp from the Center Street Bridge to northbound Front Street.
2. Reconfigure the off-ramp from Center St. bridge to eliminate the traffic light at Front St.
3. Add a second lane to the bridge ramp at Front Street.
4. Construct a ramp all the way to Liberty.

Marion Street Bridge

1. Create an off-ramp that exits left and loops under the Marion Street bridge to the Wallace Road underpass street (1st or 2nd street). This would remove the need for a traffic light at Edgewater and Wallace.
2. Put an off-ramp from the Marion Street Bridge to Musgrave Ave then extend Musgrave until it intersects with Wallace Rd in the area of Brush College Road.
3. Add an on-ramp to Marion Street Bridge coming from north Commercial onto Front St. and possibly build a bypass lane that takes cars above Wallace Road bypassing past Glen Creek Road.
4. Close the High St. exit of the Parkade (make it enter-only) at Marion and High St, but keep the right turn-only lane.
5. Ramp one lane Marion St. over Liberty and Commercial for each half of bridge with median barrier starting at top of ramp with two lanes through and two to Wallace Rd. (sic)
6. Provide an off-ramp from the Marion Street Bridge to a new road along the river and tie it in at River Bend.
7. Use the SE corner of the Marion Square Park to put a west Salem only on-ramp with single dedicated lane into west Salem.
8. Divert people going to Wallace Road from Front Street around Marion Square Park. Then they won't tie up the bridge when they cross over it.
9. If you are going to west Salem, enter the bridge from Marion Street. If you are traveling down Highway 22, enter the bridge from Front Street.

10. Split Salem Parkway so half can go on 99E and then half can go across the river and merge onto Wallace Rd NW.

TRANSPORTATION DEMAND MANAGEMENT

These ideas are geared toward reducing the number of vehicles traveling on congested roads.

Transit Service

1. Streamline transit services (back and forth to pick and drop off areas, and park and rides).
2. Provide a shuttle from the Park and Ride at Brush College.
3. Create a downtown circulator.
4. Provide a free shuttle across the bridges from parking areas.
5. Designate dedicated lanes for public transit on the bridges.
6. Schedule express buses every 30 minutes from Roth's or Safeway in west Salem to/from the downtown bus station.
7. Improve schedules:
    a. Add weekend service.
    b. Increase access in west Salem; provide services to the Capitol Mall by 7:30 am.
    c. Provide more frequent service during peak hours.
    d. Implement a fifteen-minute rotation (especially on the "key study corridors"), have more direct transit routes, and clean up the downtown transit center.
    e. Provide services seven days a week, every 15-30 minutes, 6 a.m. – 10 p.m.
8. Use smaller buses that can make more trips to west Salem and throughout the city. Allow companies to advertise on the sides of these buses to help defray costs. Provide transit employees an incentive/commission to find advertisers.
9. Add more benches to bus stops to make waiting for the bus a better experience.
10. Provide a transit parking area in west Salem and have bus service to large employers approximately every 15 minutes. Make the rides free or have some incentive to use it.
11. Improve efficiency of Cherriots.
12. Other public transportation suggestions:
    a. Augment public transit service by adding Uber and Lyft.
    b. Reroute the trains.
    c. Add a trolley to the Union Street Bridge to ferry foot traffic across the bridge.
    d. Create a free streetcar district downtown with a large parking structure outside of downtown.
    e. Install a ferry for autos and/or shuttles for state and hospital employees.
    f. Build a pontoon bridge.
    g. Prepare mass transit to adapt and leverage self-driving vehicles, allowing for community-owned and operated self-driving mass transit options that provide door-to-door service for subscribers.
    h. Negotiate with the school district for more school buses to reduce parent traffic to and from schools.
    i. Provide better Amtrak service options to/from Portland.

Employer-Based Strategies

1. Encourage employers to allow employees to work from home.
2. Implement staggered work hours to reduce peak hours of traffic, especially for State employees.
3. Expand flexible work hours.
4. Have businesses stagger business days.
5. Reinstitute a strong Commute Trip Reduction program for all state agencies and large

employers in Salem; this should include state funding for bus passes and incentives not to drive
6. Provide paid van shuttles for state workers.
7. Require state and city governments to supply free bus rides from west Salem to government offices.
8. Put some state offices in west Salem so everyone isn't trying to get to the same spot in downtown Salem at the same time of day.

Incentives to Change Travel Behavior

1. Incentivize park-and-walk option via Wallace Marine Park.
2. Implement carpool lanes.
3. Charge tolls on the bridges. Investigate congestion pricing; what would be the impact of a $1 toll placed on eastbound traffic during the morning rush hour? What about a $2 toll?
4. Increase the gas tax.
5. Create and air public service announcements that encourage (and provide some sort of bonus or incentive) for one-vehicle households, with two vehicles as a maximum.
6. Implement incentives for people to bike, ride-share, or take the bus.
7. Offer incentives to employers to stagger employee shifts to avoid peak travel times.
8. Provide a tax credit to businesses that allow their employees to work from home and/or work a shift other than at peak hours.
9. Develop a rewards program app for those using public transportation into and out of the downtown core. Build up points per ride and turn in for discounts/free items at participating local restaurants or businesses.
10. Manage demand for drive-alone trips.
11. Use Trip Choice to match riders and drivers to reduce the number of cars coming into downtown.

Future Development

1. Stop building apartments in west Salem.
2. Do not grant any additional building permits in west Salem and the surrounding area.
3. Put a stop to all building of multi-family housing along the north east side of Wallace Rd.
4. Raise permit fees on all new residential buildings in west Salem by $20K to discourage building and raise funds for transportation improvements.
5. Increase Systems Development Charges for housing in west Salem to levels that discourage new construction.
6. Re-zone, create tax incentives, etc., to encourage more business in west Salem to prevent the need to drive across the bridge for services; such as improve west Salem library, open fire and police substation, zone for increased retail (Bimart, Fred Meyer). Also, avoid concentrating large multi-family developments on Wallace Rd. NW.
7. Don't allow a Costco on Commercial, the traffic back up will be awful. Don't allow a casino in town, traffic on Portland Rd can't take it.
8. Require that when a downtown building is demolished and built back up, that at least one level of under ground parking is established like at the Grand Hotel.
9. Build more affordable housing downtown so people could walk or take the bus to work.
10. Require extensive parking review, management, and solution before moving forward with new residential and commercial building and development.
11. Stop urban sprawl and embrace true mixed land-use development.
12. Use empty lots and city-owned properties along bus stops for affordable housing developments. Working class people are traveling long distances to jobs because of lack of housing within the city. Transit-oriented development and affordable housing need more emphasis.
13. Work with the transit district when reviewing new development to make it convenient to take the bus from home to work.

Pedestrians/Bicyclists

1. Continue to improve amenities, safe routes and infrastructure for bicycle travel downtown and elsewhere in Salem.
2. Construct a low-cost bicycle/pedestrian bridge over Wallace Road, adjacent to existing OR 22 westbound bridge.
3. Add lighting to the Wallace Marine parking lot near the bridge so that people will use the parking lot and walk to work over the Union Street Bridge.
4. Have a bike commuter parking lot in Wallace Park and implement bike rental stations like in Portland.
5. Build pedestrian over/under crossings for critical intersections:
   a. Create a crossing of Wallace Road from 2nd Street to the Union Street Bridge rail path for people who want to walk and bike.
   b. Create an overpass for pedestrians crossing Front St.
6. Have free or low-cost bicycle hubs, similar to BikeTown.
7. Create a biking incentive program.
8. Implement a fully protected bicycle infrastructure program and a bicycle/pedestrian encouragement program. Provide bicycle safety classes for adults and incorporate bicycle and pedestrian safety into driver's education classes.
9. Close some downtown streets to vehicles and make them pedestrian-only.
10. Make Court Street a pedestrian mall.
11. Study the option of a pedestrian and bicycle esplanade along the Willamette River to create an attractive option for cycling and walking to downtown.
12. Revise bicycle-crossing markings at Edgewater intersections with Highway 22 on-ramp and with Wallace Road to better mark bicycle path (green stripe).
13. Increase the number of lockable bike boxes within the downtown commuter area.

Parking

1. Implement part-time parking restrictions.
2. Ban parking downtown for system workers.
3. Add park and ride lots, such as on N. Wallace Rd. and Highway 22.
4. Create a park and ride option with a secure location to leave bicycles overnight.
5. Charge for parking downtown.
6. Tax parking lots at employers.
7. Increase cost of parking at state offices.
8. Implement metered parking downtown.

Other

1. Increase traffic enforcement downtown to make the area more bike and pedestrian friendly.
2. Improve radio coverage of what the problem is and how/when it is better (Wallace Road).
3. Boost the vehicle registration fee.
4. Change the speed limit in Salem to 30 or 35 miles per hour.
5. Get the homeless camps out of down town and off the bridge ramps.
6. Give the money to the poorest of areas, not to the rich in west Salem. Already, they have some of the best schools and the best roads in the city. It is a social injustice for you to give any more to them, while ignoring the areas of the county and city that are in poverty.
7. Increase quality of all east Salem schools above that of west Salem schools to encourage families not to live in west Salem.

8. Encourage people to buy homes on the side of the river where their job is located.
9. Encourage informal ride share. For instance, provide a covered shelter behind Roth's where people can "thumb a ride" across the bridge. I can drive by and offer a ride. I hear outcries. Liability. Stranger danger. But this works in New York City and San Francisco.
10. Limit the number of cars allowed into an area at a time; institute fees for overuse of an area.

E. TASK FORCE MEETING #1

AGENDA FOR FEBRUARY 23, 2018

MATERIAL FOR FEBRUARY 23, 2018

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

MEETING GOALS

1. Welcome and Introductions ▶ 7:00

2. Meeting Goals and Agenda Review ▶ 7:05

3. Task Force Process ▶ 7:10

Agreement on:

- Task Force Goals — Public project description
- Public Survey — Content, timeframe

Weigh-in on:

- Task Force Operating Agreements — Roles and communications

4. Key Transportation Issues ▶ 7:30

Agreement on:

- Key Problem Areas

5. Current Policies and Existing Constraints ▶ 8:00

Weigh-in on:

- Which policies are flexible and which are not? To what degree?

6. Wrap up and Next Steps ▶ 8:20

DATE	MEETING TOPIC
Feb. 23	**1. Project Introduction** a. Task Force goals and process b. Key transportation issues c. Current policies and constraints
March 23	**2. Future Conditions, Transportation Ideas, Evaluation Criteria**
April 20	**3. Transportation Idea Results:** Tier 1 Screening (choose 3)
May 4	**Optional meeting**
May 18	**4. Transportation Idea Results:** Tier 2 Screening
June 29	**6. Recommendations**
July	**7. Additional meeting if needed**

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CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem
AT YOUR SERVICE

With traffic levels hampering downtown circulation, and long delays in west Salem, residents are asking for transportation infrastructure improvements.

Composed of the Mayor and three City Councilors, the Task Force will investigate potential ways for the City to relieve congestion in the project area and advise the City on policies and actions to improve traffic flow.

The Task Force will:

1	2	3	4
Collect ideas from the public on how to reduce congestion.	Evaluate past transportation studies to build off prior solutions.	Conduct a technical analysis to evaluate traffic options for the near-term.	Share the results of the technical analysis and a list of recommendations for public comment later this year.

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CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

TASK FORCE GOAL

The Congestion Relief Task Force is investigating potential ways for the City to relieve congestion in the project area and advise the City on policies and actions to improve traffic flow.

MEETING GUIDELINES

1. **Honor the agenda.**
2. **Listen carefully to speakers.**
3. **Focus on issues, not people.**
4. **Be recognized before speaking and don't interrupt.**
5. **Monitor speaking time to give others a chance to speak.**
6. **Avoid side conversations.**

- The public is welcome to observe meetings and provide written input — comment cards are provided.
- All individuals are expected to observe respectful behavior during Task Force meetings.
- Please turn all cell phones to silent and refrain from talking.
- Anyone acting in a disruptive, disorderly or threatening manner will be asked to leave, and may be precluded from participating in future meetings.
- Recordings of Task Force meetings will be posted online one week after each meeting.
- Public input will be received in writing at anytime during the course of the Task Force process. Send all comments to *publicworks@cityofsalem.net.*

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CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Task Force Meeting #1, February 23, 2018

DKS

Prepared by DKS Associates

CITY OF Salem
AT YOUR SERVICE

Past Accomplishments

Previous Transportation Studies Completed

- Wallace Road Local Access & Circulation Study - 1997
- Bridge Head Engineering Study (BHES) – 1998
- West Salem Gateway Area Refinement Plan - 2005
- Salem Willamette River Crossing Alternate Modes Study – 2010
- Salem River Crossing Draft EIS Alternative 2A (EIS) - 2012
- *Central Salem* Mobility Study – 2013
- *West Salem* Business District Action Plan - 2015
- City of Salem Transportation System Plan (TSP) – Updated 2016
- MWVCOG Regional Transportation System Plan (RTSP) – Updated 2016

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

West Salem

Completed Improvements

	Improvement
1	Taggart connector roads
2	Edgewater Street NW/Rosemont Ave intersection capacity improvements
3	Relocated traffic signal from 7th St to Taggart Dr
4	Cornucopia St connector road with transit facilities
5	Wallace Rd/Edgewater St traffic signal capacity improvements (Left turn prohibition)
6	Wallace Road/Glen Creek Road capacity improvements
7	Union Street Railroad Bridge converted to ped-bike bridge with trail connections constructed
8	Multi-use trail connection from Union St. Bridge trail to Glen Creek Road

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

West Salem

Previously Identified Transportation Improvements

	Improvement
5	Wallace Rd/Edgewater St: • Add eastbound and westbound lanes on Wallace Rd. • Improve geometry, and • Close Musgrave Ln.
9	Marine Dr. connector roadway
10	Multimodal grade-separated crossing at 2nd St/Wallace Rd
11	Marion Street Bridge increase to six westbound lanes and provide Marine Dr off-ramp
	Center St Bridge widen to five eastbound lanes
12	Wallace Rd improvements: Three ramp lanes and six-lane cross section
13	Signal at Edgewater/Patterson St
14	Murlark Ave. connector roadway to Glen Creek Rd

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

East Salem

Completed Improvements

	Improvement
1	Commercial/Division improvements
2	Ramp from Center St bridge to southbound Front St. widened to two lanes
3	Front St pedestrian median improvements
4	Traffic signal at Center St/Front St ramp (ITS detection for congestion management)
5	Traffic signal at Commercial/Union for east-west bicycle/pedestrian movements

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

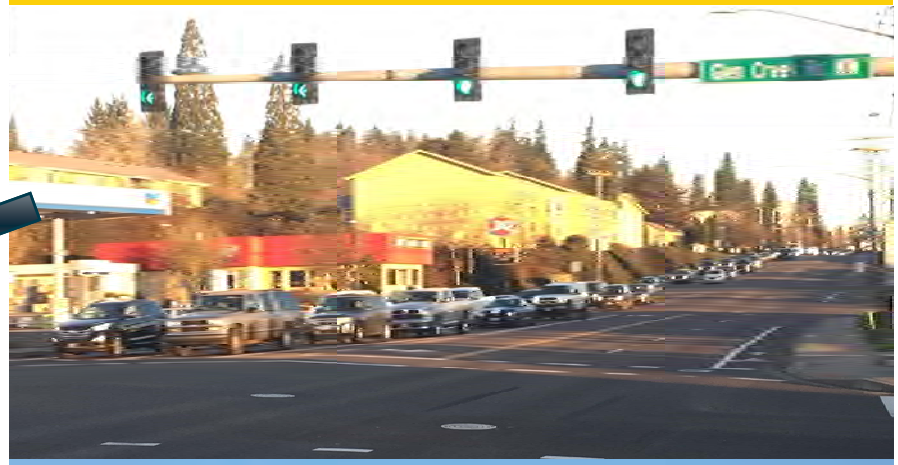
East Salem

Previously Identified Transportation Improvements

	Improvement
6	Construct Union St bikeway
7	Widen ramp to two lanes or provide uncontrolled right turn
8	Commercial/Marion St Bridge capacity improvements: Exclusive double right turn lanes Alternatively Uncontrolled right turn ramp onto Marion St Bridge over park, no pedestrian crossing
9	Widen Front Street to a Minor Arterial standard.

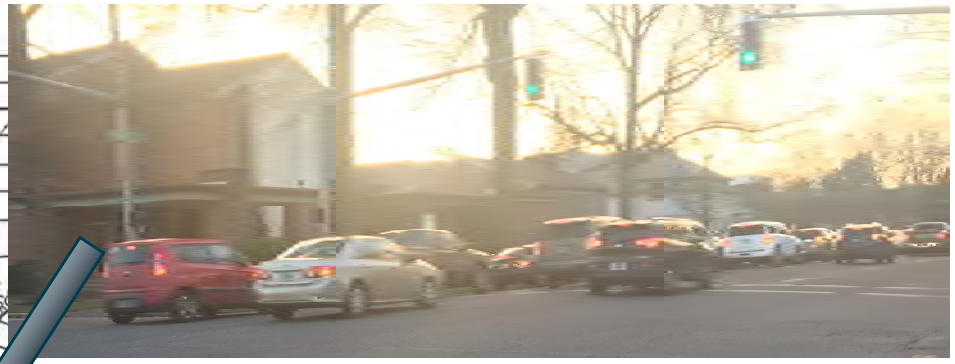
AM Peak Hour Congestion

Wallace Rd (southbound)

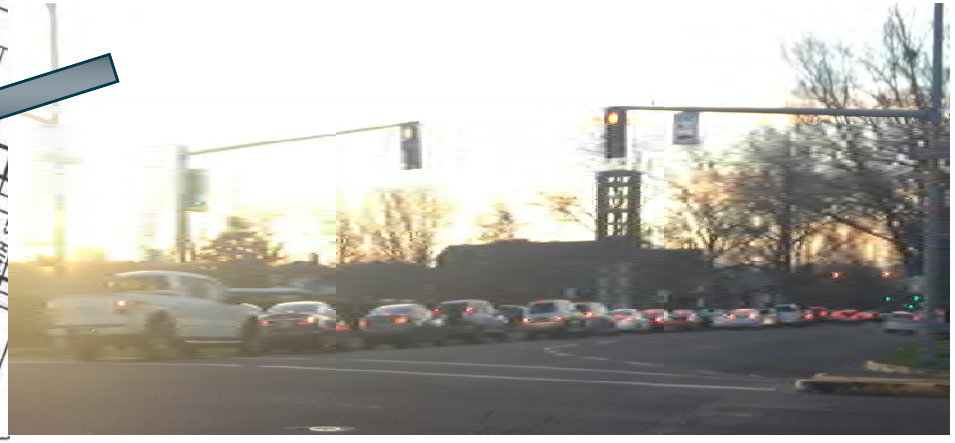


PM Peak Hour Congestion

Marion Street at Cottage St (westbound)



Marion Street at Capitol St (westbound)

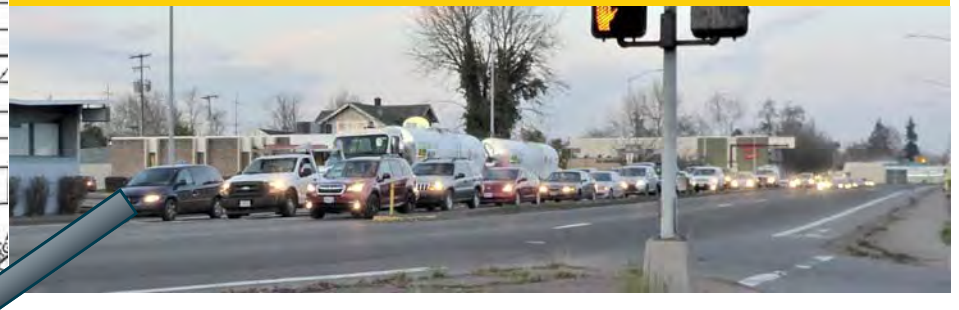


CONGESTION RELIEF TASK FORCE

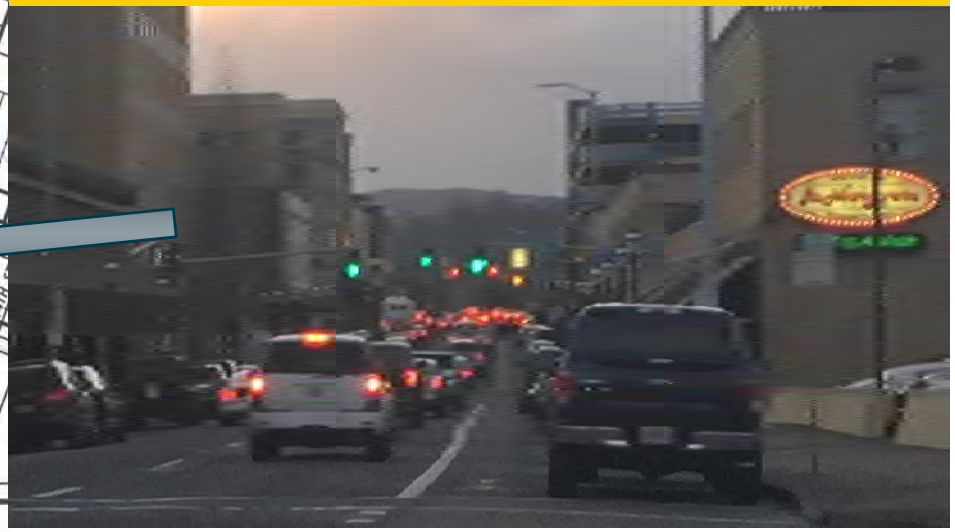
A Technical Review of Transportation Infrastructure Options

PM Peak Hour Congestion

Commercial St at Division St/Front St (southbound)



Ferry Street at Church St (westbound)



CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

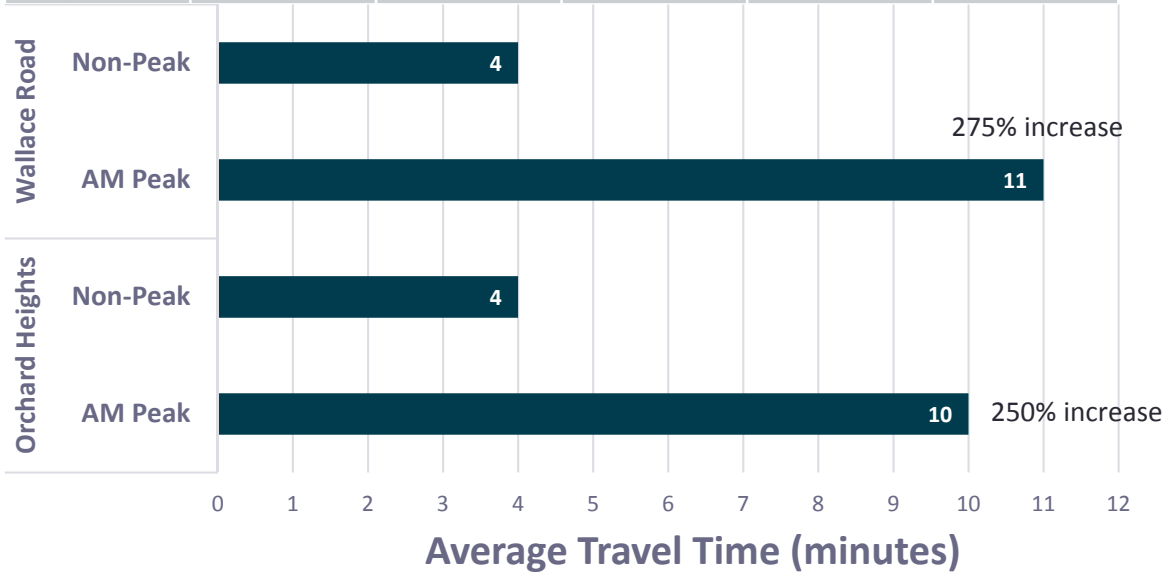
Typical Travel Times (AM Peak Hour)

Wallace Road

Start	End	Condition	Speed	Average Travel Time	Delay
A	E	Non-Peak	32 mph	4 mins	-
A	E	AM Peak	10 mph	11 mins	**7 mins**

Orchard Heights Road

Start	End	Condition	Speed	Average Travel Time	Delay
B	E	Non-Peak	23 mph	4 mins	-
B	E	AM Peak	10 mph	10 mins	**6 mins**



CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

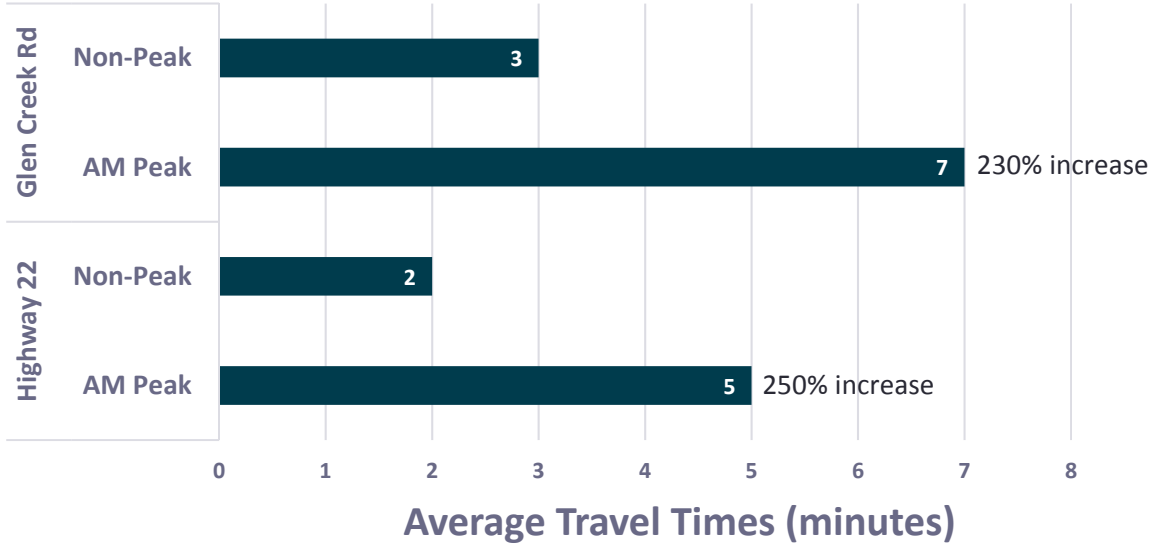
Typical Travel Times (AM Peak Hour)

Glen Creek Road

Start	End	Condition	Speed	Average Travel Time	Delay
C	E	Non-Peak	22 mph	3 mins	-
C	E	AM Peak	9 mph	7 mins	**4 mins**

Highway 22

Start	End	Condition	Speed	Average Travel Time	Delay
D	E	Non-Peak	33 mph	2 mins	-
D	E	AM Peak	15 mph	5 mins	**3 mins**



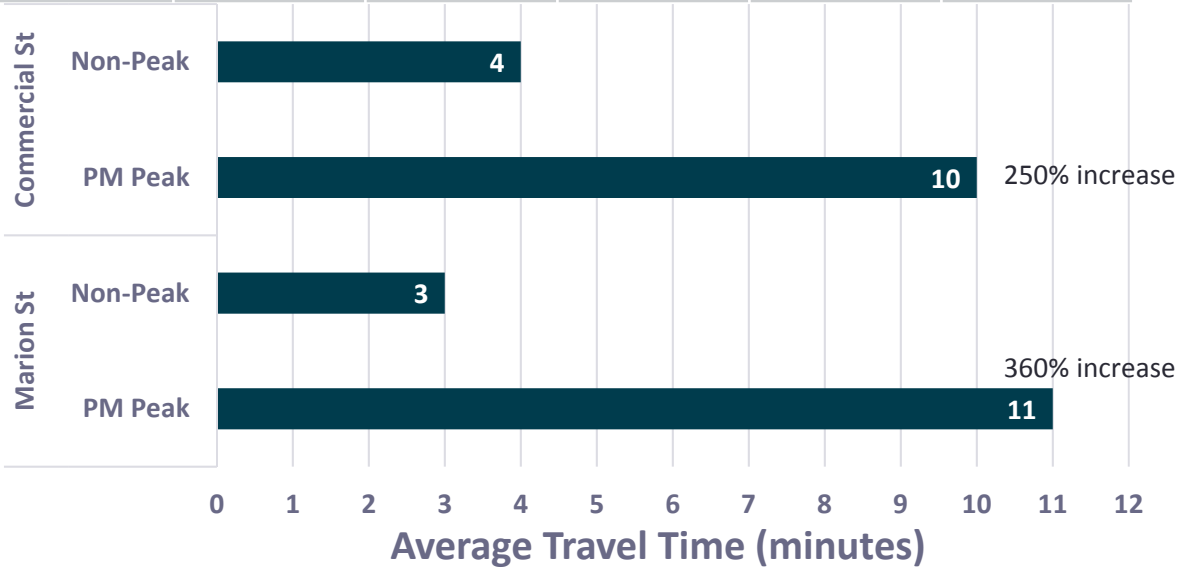
Typical Travel Times (PM Peak Hour)

Commercial Street

Start	End	Condition	Speed	Average Travel Time	Delay
A	E	Non-Peak	23 mph	4 mins	-
A	E	PM Peak	9 mph	10 mins	**6 mins**

Marion Street

Start	End	Condition	Speed	Average Travel Time	Delay
B	E	Non-Peak	16 mph	3 mins	-
B	E	PM Peak	4 mph	11 mins	**8 mins**



CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

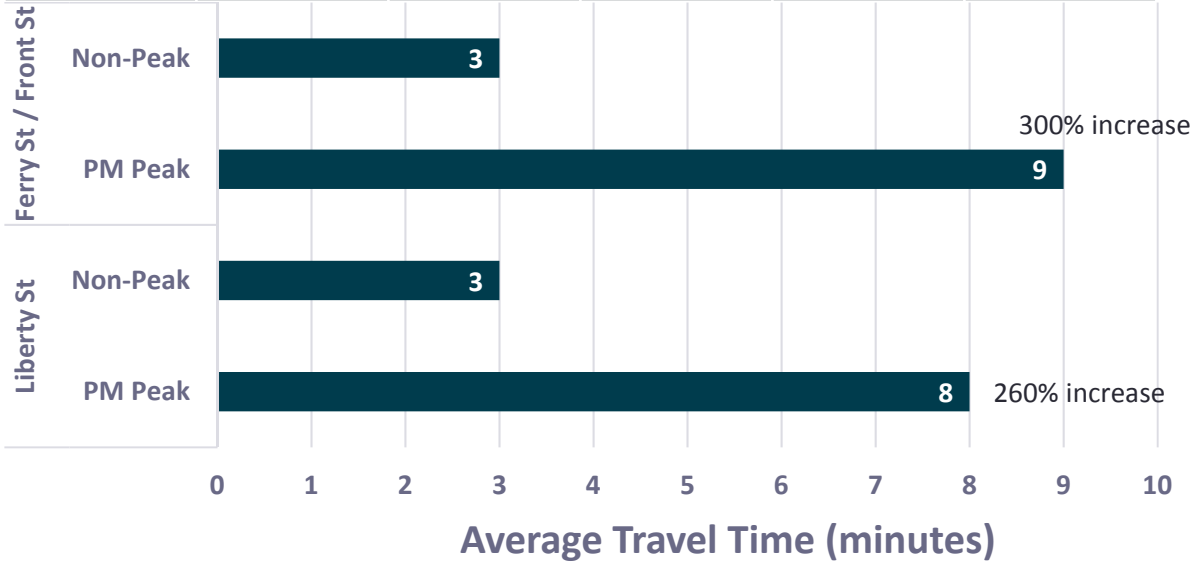
Typical Travel Times (PM Peak Hour)

Ferry Street / Front Street

Start	End	Condition	Speed	Average Travel Time	Delay
C	E	Non-Peak	22 mph	3 mins	-
C	E	PM Peak	7 mph	9 mins	**6 mins**

Liberty Street

Start	End	Condition	Speed	Average Travel Time	Delay
D	E	Non-Peak	17 mph	3 mins	-
D	E	PM Peak	7 mph	8 mins	**5 mins**



F. TASK FORCE MEETING #2

AGENDA FOR APRIL 20, 2018

MATERIAL FOR APRIL 20, 2018

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

April 20, 2018

MEETING GOALS

1. Agenda Review and Meeting #1 Recap ▶ **7:00**

2. Future Transportation Conditions ▶ **7:10**

3. Transportation Solution Ideas ▶ **7:20**

Weigh-in on: Summary List of Ideas

4. Evaluation Criteria ▶ **8:10**

Agreement on: Evaluation Criteria

5. Wrap-up and Next Steps ▶ **8:25**

DATE	MEETING TOPIC
Feb. 23	**1. Project Introduction** a. Task Force goals and process b. Key transportation issues c. Current policies and constraints
April 20	**2. Future Conditions, Transportation Ideas, Evaluation Criteria**
May 4	**3. Optional meeting**
May 18	**4. Transportation Idea Results:** Tier 1 Screening (choose 3)
June 29	**5. Transportation Idea Results:** Tier 2 Screening
July	**6. Recommendations**

CITY OF SALEM PUBLIC WORKS DEPARTMENT
555 Liberty St. SE · Suite 325 · Salem, OR 97301-3513 · Email: *publicworks@cityofsalem.net* · Tel: 503-588-6211 · cityofsalem.net

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

Share Your Ideas!

With traffic levels hampering downtown circulation and long delays in west Salem, residents are asking for transportation infrastructure improvements. The Task Force will investigate potential ways for the City to relieve congestion in the project area and advise the City Council on policies and actions to improve traffic flow (see back page for map). **From February 24 to March 10, the City of Salem welcomes your ideas on possible solutions.** The City will then conduct a technical analysis to evaluate traffic options that can happen in the near-term. The City will share the results of the technical analysis and a list of recommendations for public comment later this year.

1. My ideas for transportation congestion relief in the project area (use back of page if needed, see map other side):

2. My address zip code is: _____

3. I work in Salem: ☐ yes ☐ no

4. I own property in Salem: ☐ yes ☐ no

5. The street intersection closest to where I live is: _____

6. Please check the appropriate boxes:

In Salem, I get from one place to another by:	All the time	Most of the time	Sometimes	Rarely	Never
A. Driving or riding in a car, truck, or motorcycle	☐	☐	☐	☐	☐
B. Riding a bicycle	☐	☐	☐	☐	☐
C. Walking	☐	☐	☐	☐	☐
D. Taking the bus	☐	☐	☐	☐	☐
E. Other:	☐	☐	☐	☐	☐

CITY OF SALEM PUBLIC WORKS DEPARTMENT
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CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Task Force Meeting #2, April 20, 2018

DKS

Prepared by DKS Associates

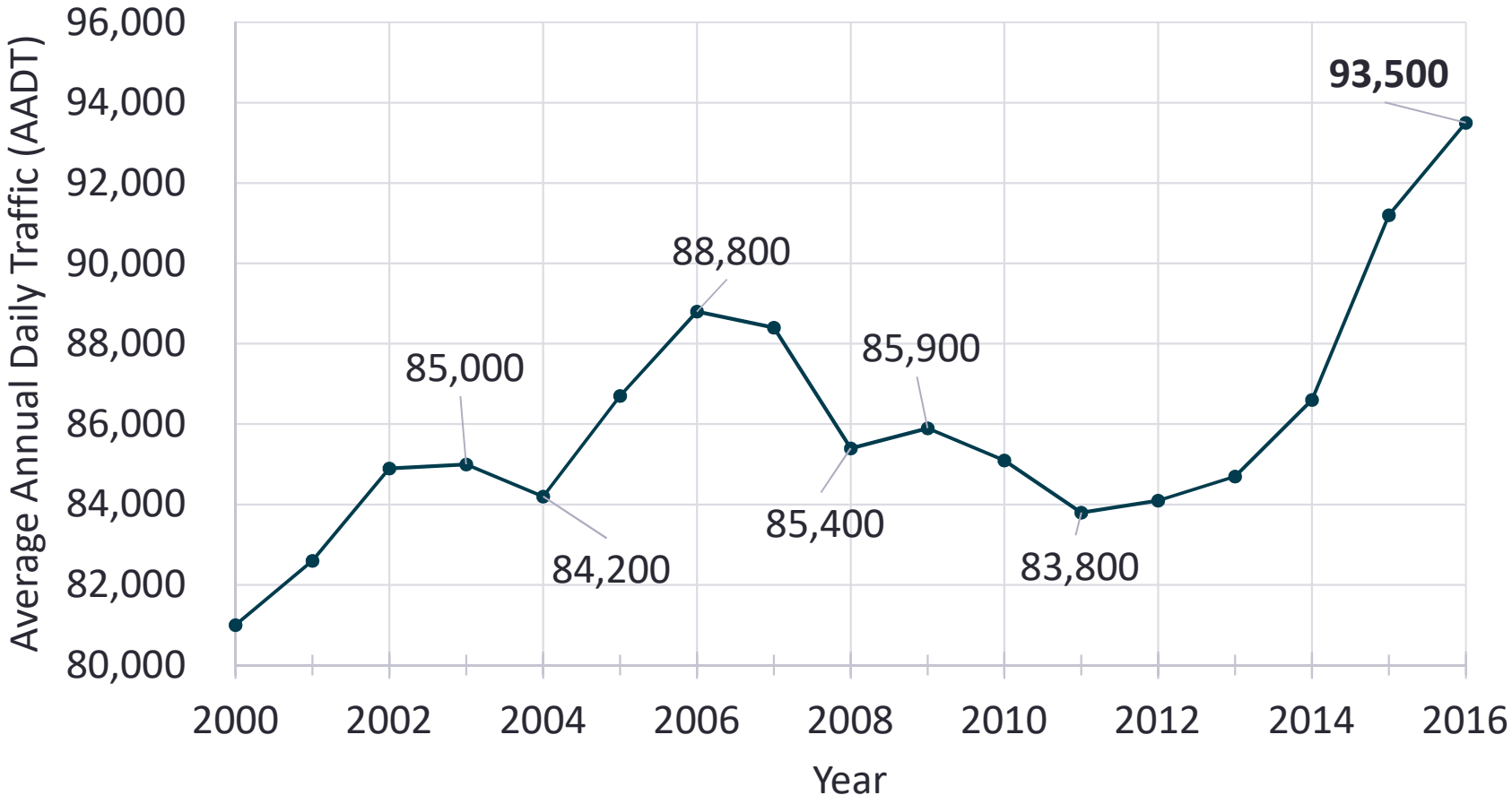
CITY OF Salem AT YOUR SERVICE

Agenda

- Agenda Review and Meeting #1 Recap
- Future Transportation Conditions
- Transportation Solution Ideas
- Evaluation Criteria (handout)
- Wrap up and Next Steps

Traffic Growth Over the Years

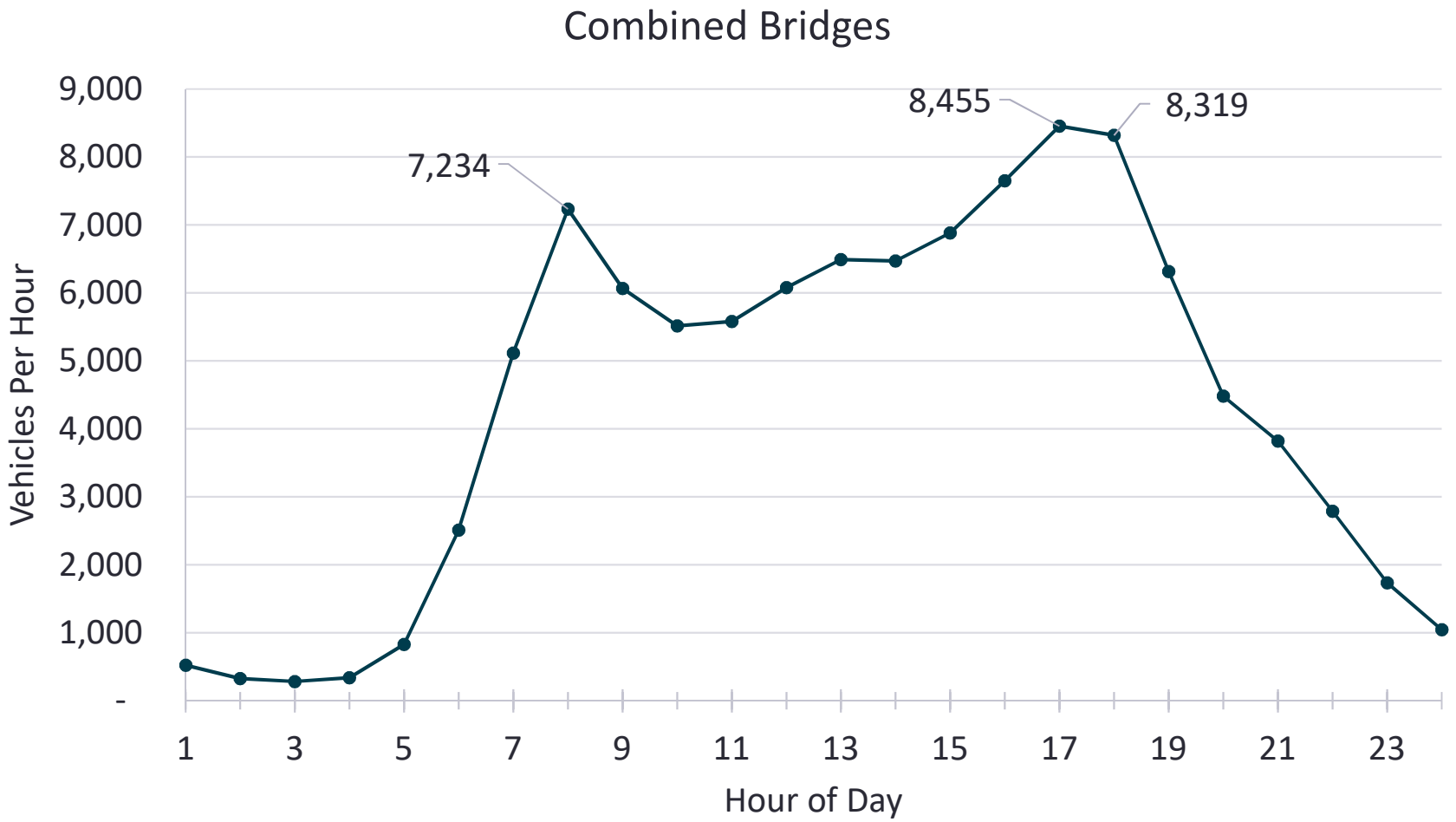
Using data from ODOT Traffic Recorders, traffic across the Salem Bridges has increased by 12% from 2011 to 2016 or an average of 2.3% per year



CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

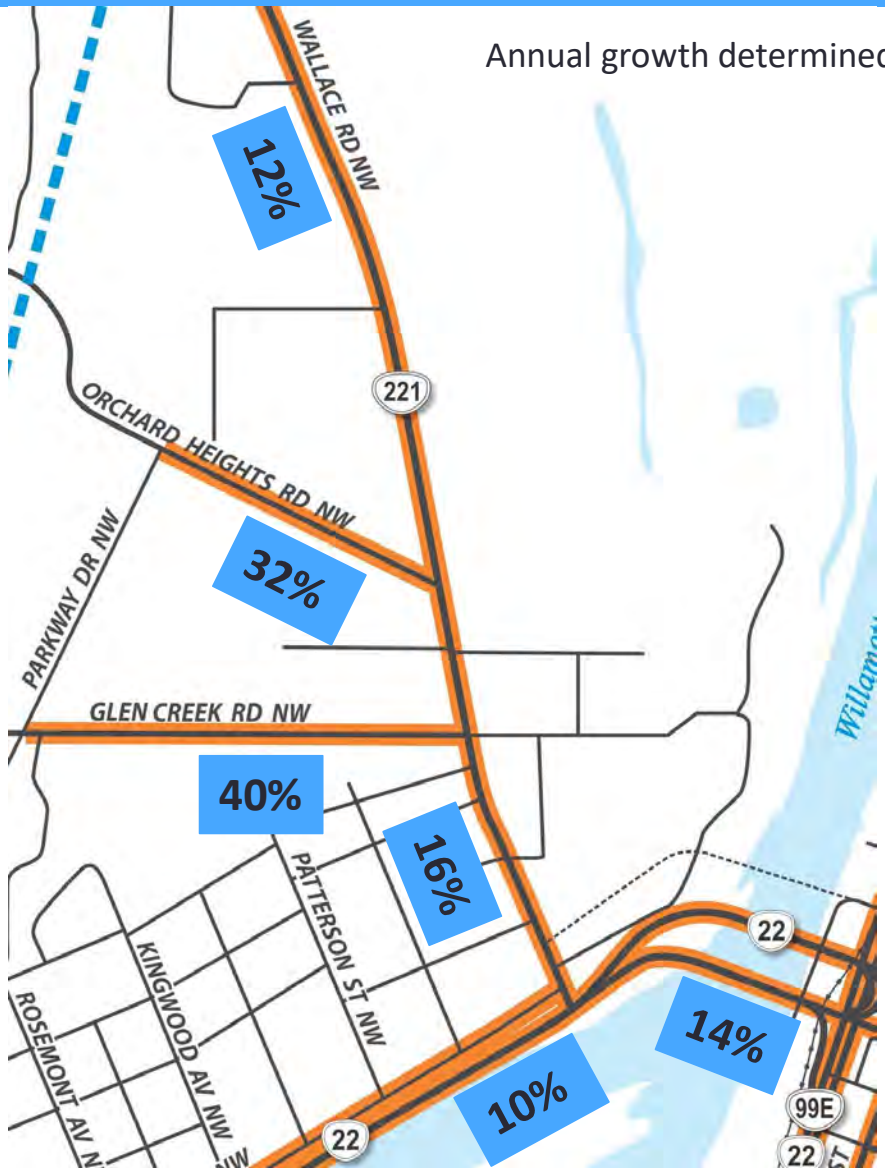
Average Hourly Weekday Volumes



Bi-directional volume data from ODOT ATR #24-014, typical weekday April to June of 2017

AM Estimated 10-year Trip Growth

Annual growth determined using MWVCOG model



PM Estimated 10-year Trip Growth

Annual growth determined using MWVCOG models

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

2035 Estimated AM Queuing

See Handout

Southbound Wallace Road

Eastbound Orchard Heights Road

Eastbound Glen Creek Road

Eastbound HWY 22

Northbound Liberty Street

2035 Estimated PM Queuing

See Handout

Orchard Heights Road

Eastbound Glen Creek Road

Northbound Liberty Street

Southbound Commercial Street

Westbound Marion Street

Westbound Ferry Street

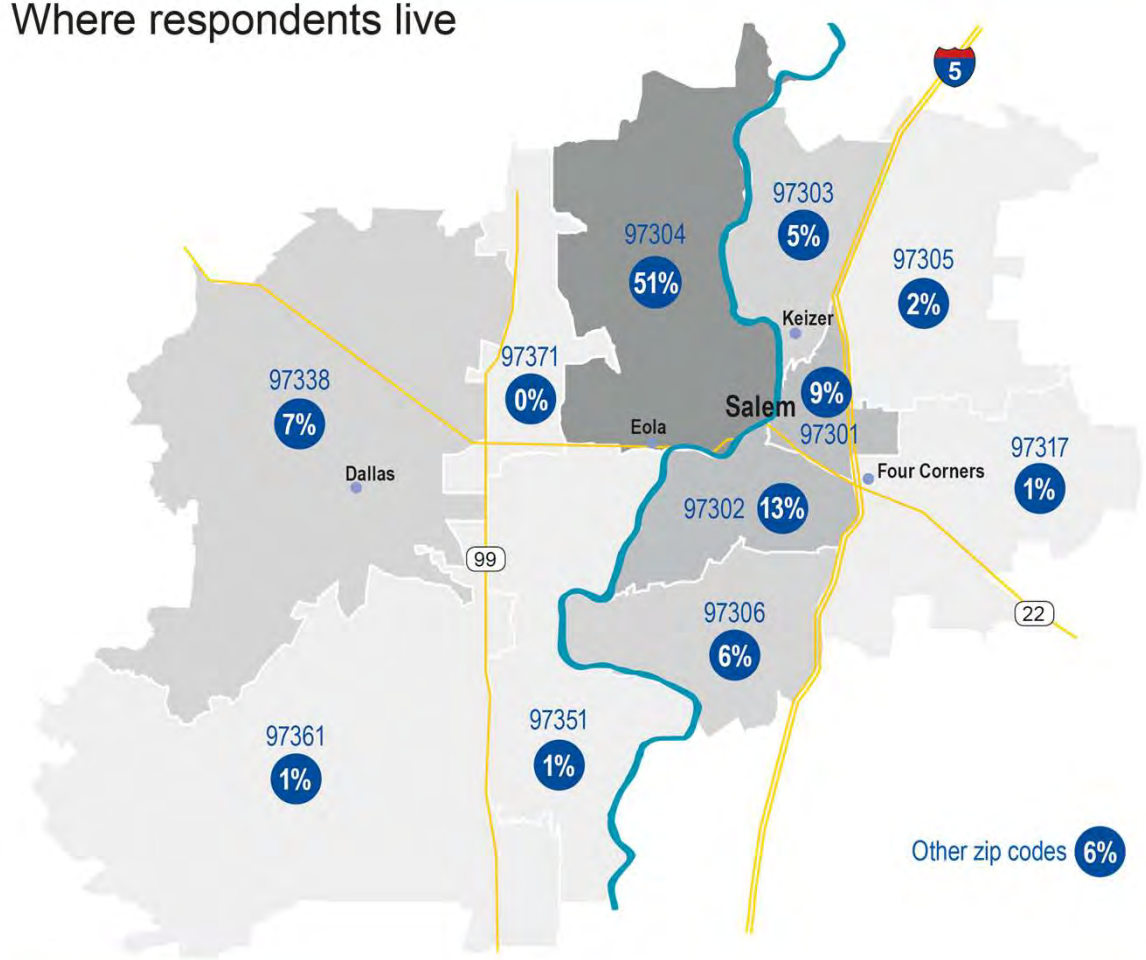
CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

My Ideas Questionnaire

Public Responses

Where respondents live



Online and hard copy questionnaire, non-scientific, distributed via City website and social media from 2/24/18 to 3/10/18, asking for ideas to relieve traffic congestion in the project area.

1,300 RESPONSES
99 PAGES OF COMMENTS
CODED TO REVEAL THEMES

CONGESTION RELIEF TASK FORCE

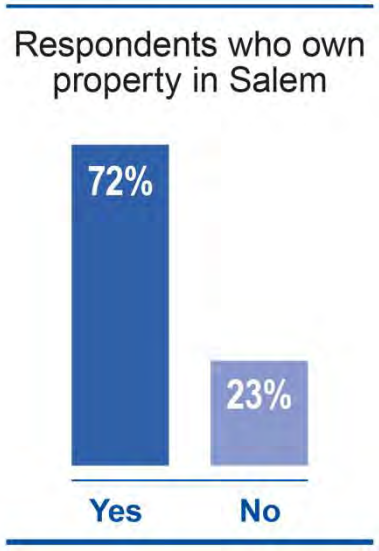
A Technical Review of Transportation Infrastructure Options

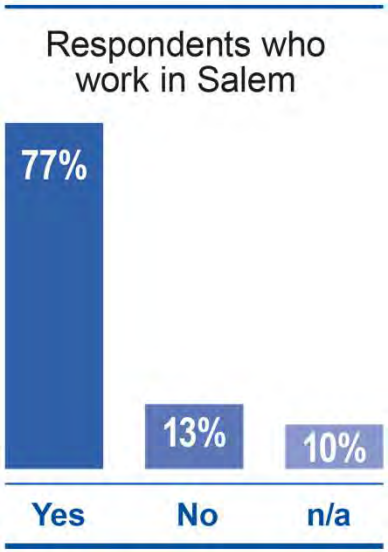
My Ideas Questionnaire

Public Responses

How respondents get around:

	Always	Mostly	Sometimes	Rarely	Never
Car, truck or motorcycle	73%	23%	4%	–	–
Bicycle	1%	1%	13%	20%	66%
Walking	1%	3%	37%	23%	26%
Bus	–	–	6%	13%	80%





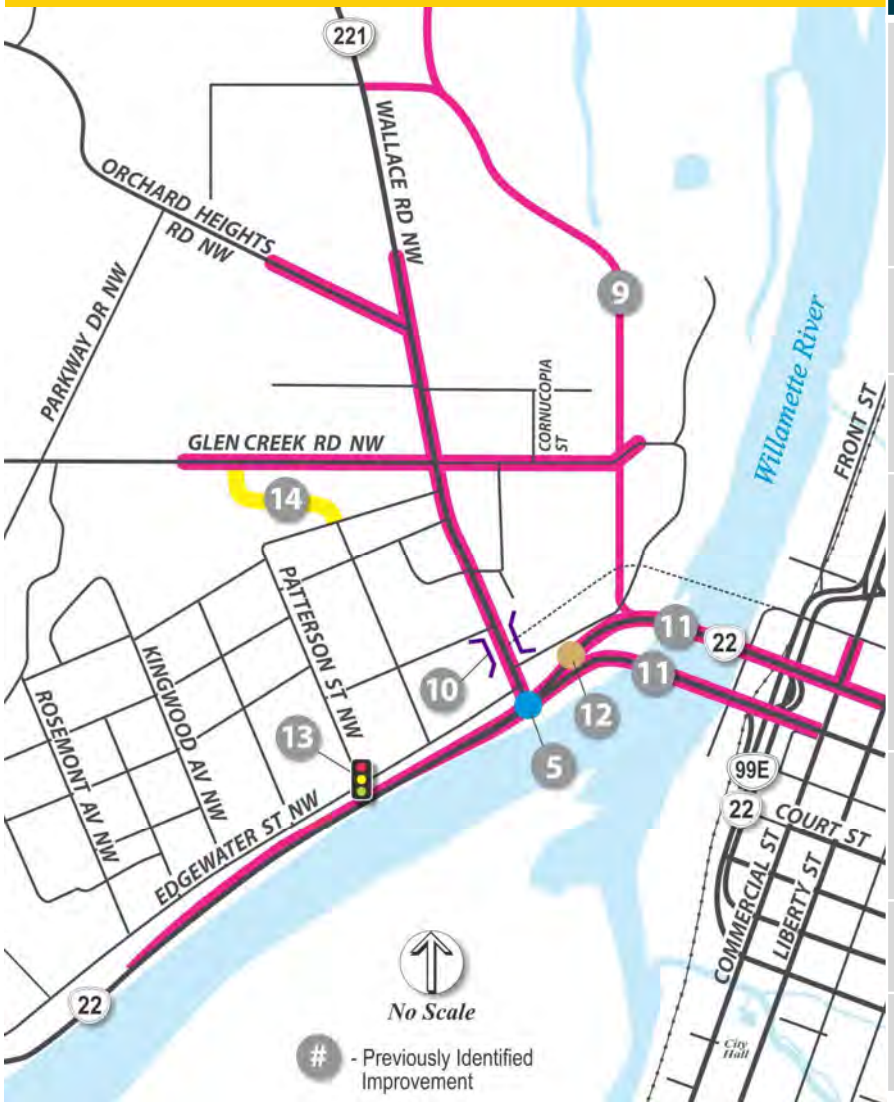
Idea Goal

GOAL: Improving vehicular mobility and identifying ways to reduce vehicular congestion within the study area.

- Develop ideas to reduce traffic congestion and vehicular mobility in the:
  - Short term (within 5 years)
  - Medium term (within 10 years)
  - Long term (longer than 10 years)
- Select the most promising ideas for high-level traffic engineering analysis
- Conduct traffic engineering analysis on three selected ideas that include the following:
  - Estimated immediate improvement in traffic flow, delay, and queuing.
  - Estimated future improvement in traffic flow, delay, and queuing.

Solution Ideas

Previously Identified Transportation Ideas



	Ideas
5	Wallace Rd/Edgewater St: • Add eastbound and westbound lanes on Wallace Rd. • Improve geometry, and • Close Musgrave Ln.
9	Marine Dr. connector roadway
10	Multimodal grade-separated crossing at 2nd St/Wallace Rd
11	Marion Street Bridge increase to six westbound lanes and provide Marine Dr off-ramp
	Center St Bridge widen to five eastbound lanes
12	Wallace Rd improvements: Three ramp lanes and six-lane cross section
13	Signal at Edgewater/Patterson St
14	Murlark Ave. connector roadway to Glen Creek Rd

Solution Ideas

Previously Identified Transportation Ideas

	Ideas
6	Construct Union St bikeway
7	Widen ramp to two lanes or provide uncontrolled right turn
8	Commercial/Marion St Bridge capacity improvements: • Exclusive double right turn lanes *Alternatively* • Uncontrolled right turn ramp onto Marion St Bridge over park, no pedestrian crossing
9	Widen Front Street to a Minor Arterial standard.

CONGESTION RELIEF TASK FORCE

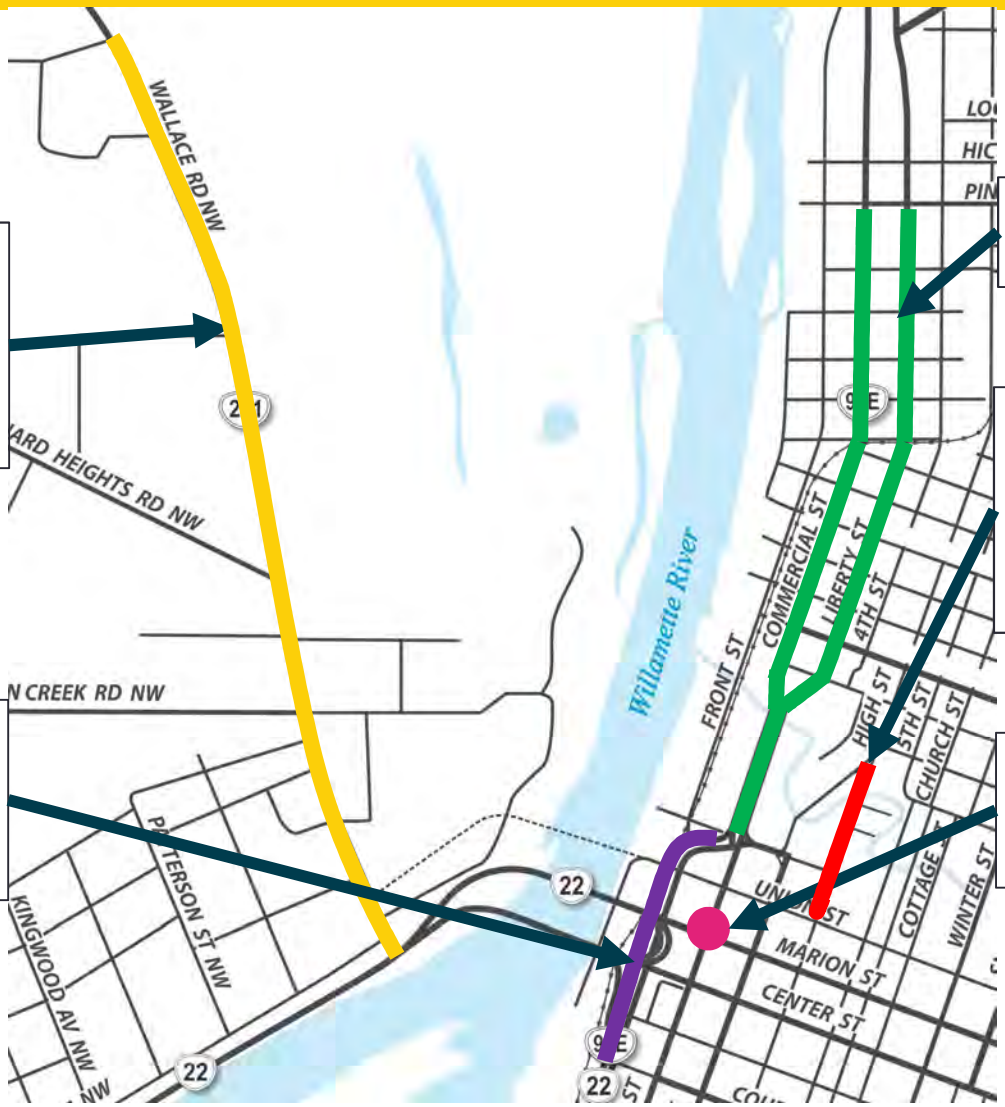
A Technical Review of Transportation Infrastructure Options

Solution Ideas

Added Lanes

Add through and right turn lanes to Wallace Road from Hwy 22 to Brush College Rd

Add two SB lanes to Front Street (from Commercial St to Court St)



Add lanes to Commercial Street/Liberty Street

Extend two SB lanes on High St past Union Street (remove parking) & make SBRT free flow at Marion Street

Triple Right Turn Lanes at Commercial St/Marion St onto Marion St Bridge

Solution Ideas

Ramps

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Solution Ideas

Ramps

Add an on-ramp to Marion Street Bridge from Front St SB

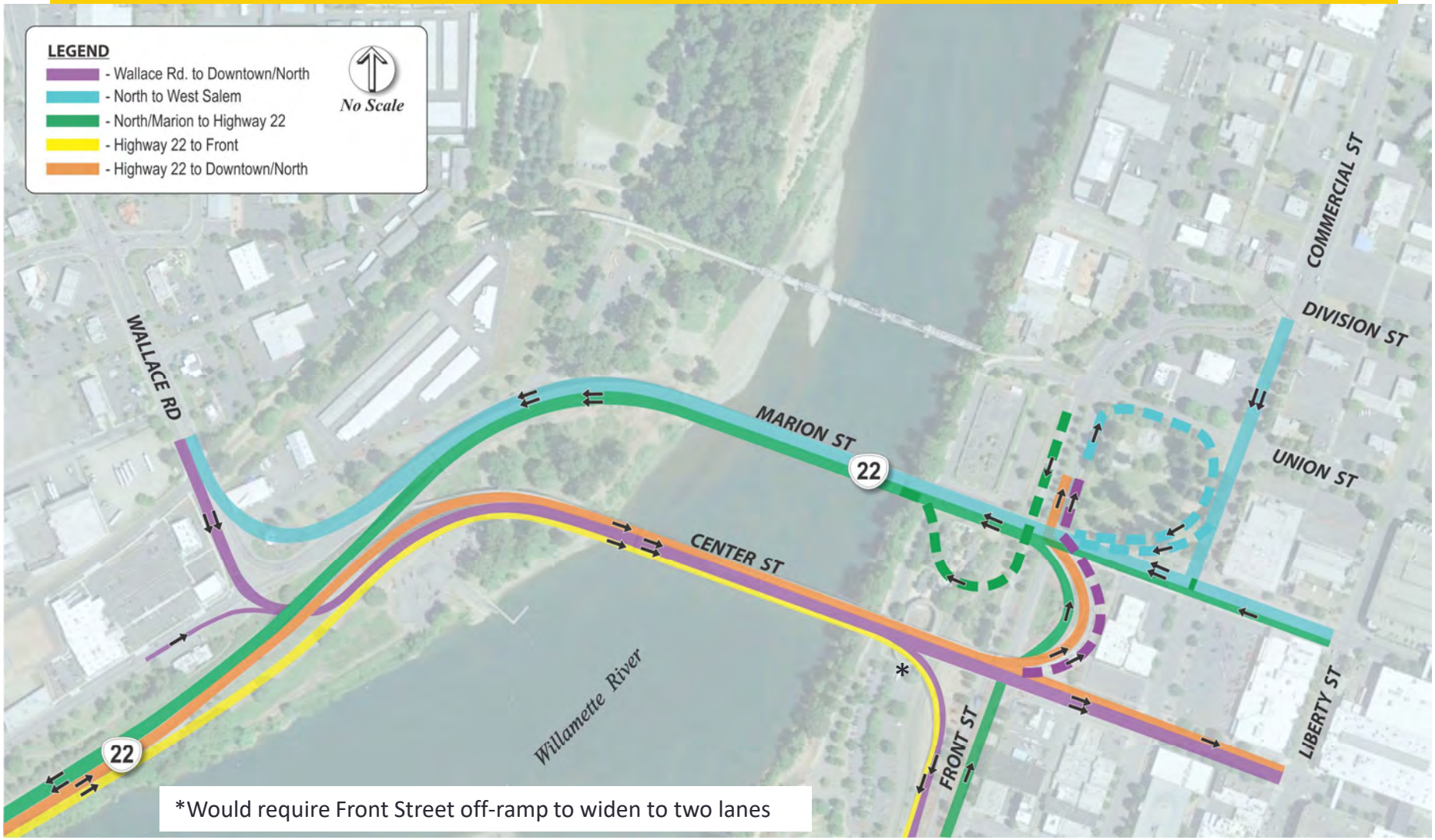
Add an on-ramp to Marion Street Bridge from Front St NB through the park

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Solution Ideas

Remove Weaving and Lane Changes on Bridges



*Would require Front Street off-ramp to widen to two lanes

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Solution Ideas

Improved Operations

- Improved Signal Timing and Synchronization
  - Marion Street and Center Street
  - Wallace Road
  - Commercial Street
- Pedestrian Crossing Modifications
  - Increase Pedestrian Delays during peak periods (longer cycle lengths)
  - Add grade-separated crossing of Front Street between downtown and Riverfront Park
- Remove Traffic Signals
  - Commercial Street/Union Street
  - Edgewater Road/Wallace Road

Solution Ideas

Others

- Improve Signage
- Allow motor vehicle traffic on Union Street Bridge during peak congestion
- Add Bus Pull-out Lanes
- Reversible travel lanes
- Open Musgrave Avenue through Wallace Marine Park to Glen Creek Road

Solution Ideas

Travel Demand Management (TDM)

Transit

- Increase bus frequency to west Salem
- Downtown circulator
- Expanded Park and Ride services
- Dedicated transit/carpool lanes

Other

- Improve facilities for bicycles and pedestrians
- Discourage future development in west Salem
- Encourage high-density land use in downtown
- Incentives to change travel behavior: telecommuting, staggered work hours
- Implement tolls and increase gas tax and parking costs in downtown

Evaluation Criteria

See Handout

EVALUATION CRITERIA

Primary: Relieve congestion in the project area and advise the City on policies and actions to improve traffic flow.

Secondary:

Transportation

- Safety
- On-street parking
- Pedestrian facilities
- Bicycle facilities
- Transit facilities
- Property impacts/acquisition
- Emergency vehicle access and response time
- Grade-separated facilities
- Medians/turning/driveway limitations

Other

- Parks
- Landscaping/visual impacts
- Community livability
- Area economic vitality
- Historical resources
- Cultural resources
- Consistency with city/state design standards
- Consistency with city/state adopted plans
- Project costs

G. TASK FORCE MEETING #3

AGENDA FOR MAY 18, 2018

MATERIAL FOR MAY 18, 2018

CITY OF Salem AT YOUR SERVICE

Public Works Department

Congestion Relief Task Force

Si necesita ayuda para comprender esta información, por favor llame 503-588-6211.
Disability-related modification or accommodation, including auxiliary aids or services, in order to participate in this meeting or event, are available upon request. Sign language and interpreters for languages other than English are also available on request. To request such an accommodation or interpretation, contact Judy Postier at 503-588-6008 or jpostier@cityofsalem.net at least two business days before meeting; or TTD/TTY telephone 503-588-6439, is also available 24/7.

MEMBERS

Mayor Bennett
Councilor Chris Hoy
Councilor Cara Kaser
Councilor Jim Lewis

CITY STAFF

Julie Warncke
Peter Fernandez
Kevin Hottmann
Robert Chandler

OTHER

Scott Mansur, DKS
Julie Fischer, Cogito
Terry Cole, ODOT
Mike Jaffe, MWVCOG

NEXT MEETING

Friday, June 29, 2018
7:00-8:30 a.m.

MEETING AGENDA

Friday, May 18, 2018
7:00-9:00 a.m.
Public Works Department
555 Liberty Street SE, Room 325

1.	**Agenda Review and Meeting #2 Recap**	**7:00**
2.	**Capacity Relationship Concepts**	**7:10**
3.	**Transportation Solutions**	**7:30**
4.	**Evaluation of Solution Packages**	**8:00**
5.	**Wrap up and Next Steps**	**8:50**

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Task Force Meeting #3, May 18, 2018

DKS

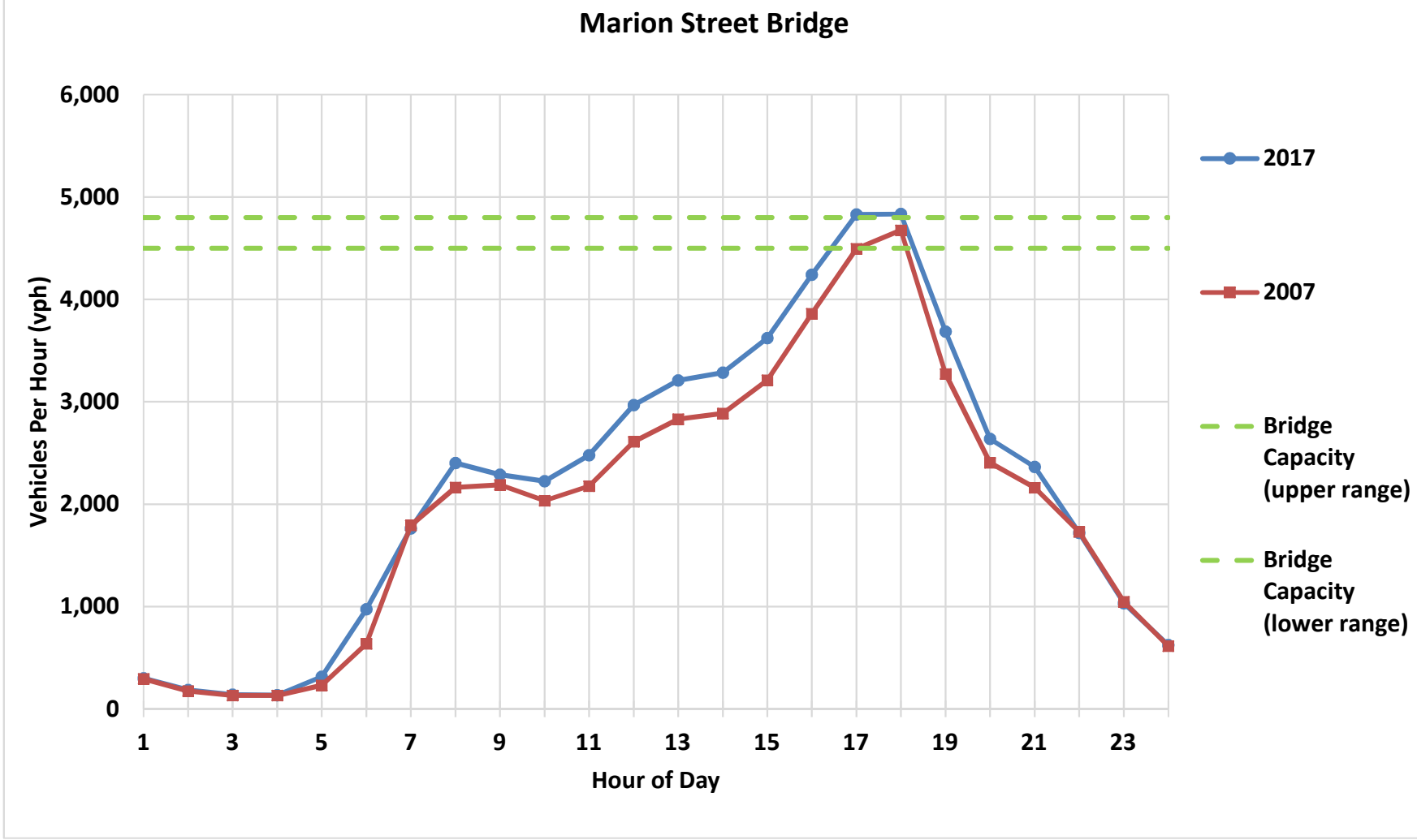
Prepared by DKS Associates

CITY OF Salem AT YOUR SERVICE

Agenda

- Agenda Review and Meeting #2 Recap
- Capacity Relationship Concept
- Transportation Solutions
- Evaluation of Solution Packages
- Wrap-up and Next Steps

Average Hourly Weekday Volumes

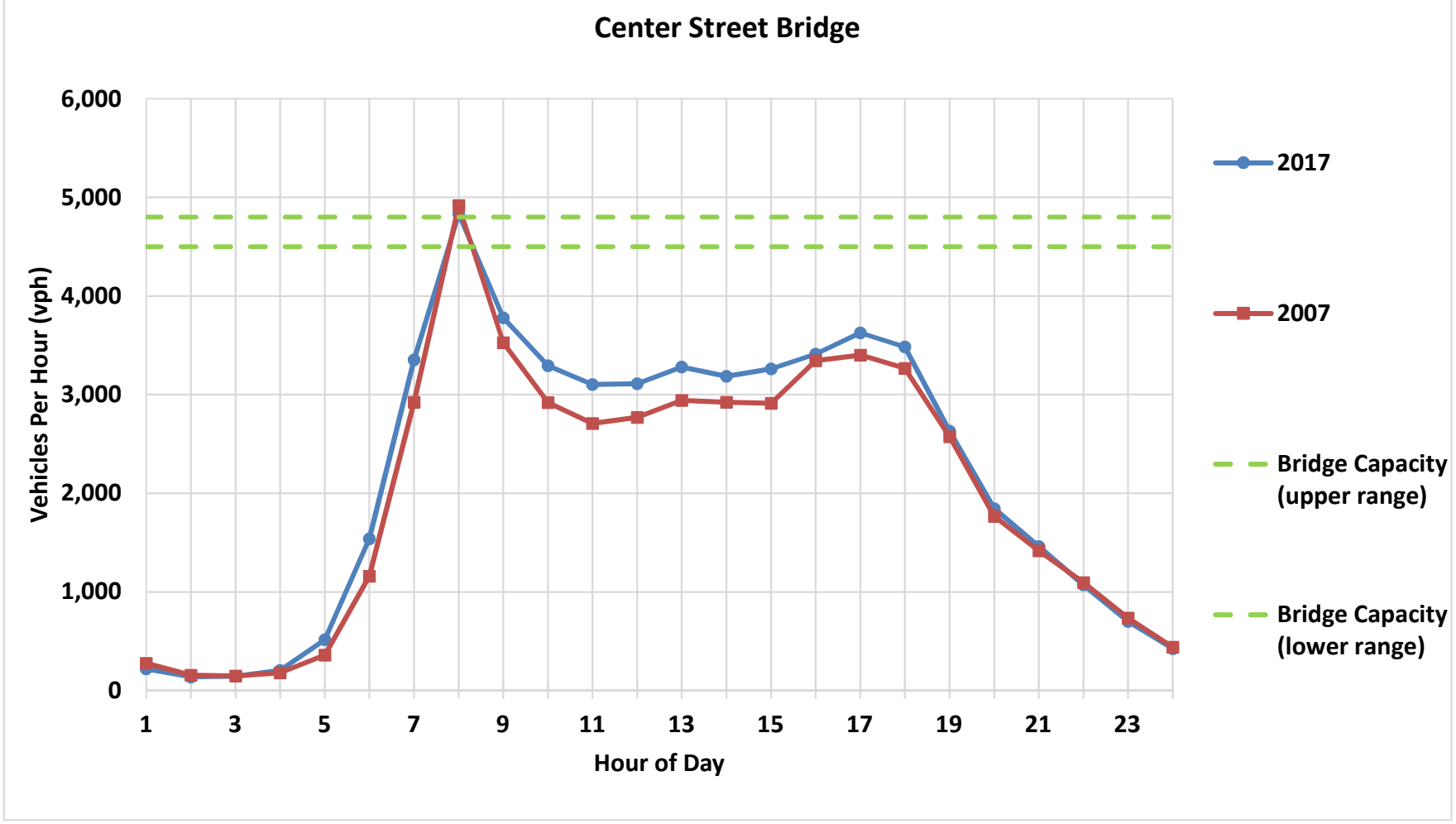


Average typical weekday data from April to June of 2007 and 2017

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Average Hourly Weekday Volumes



Average typical weekday data from April to June of 2007 and 2017

Capacity Relationship Concept

Capacity Relationship Concept

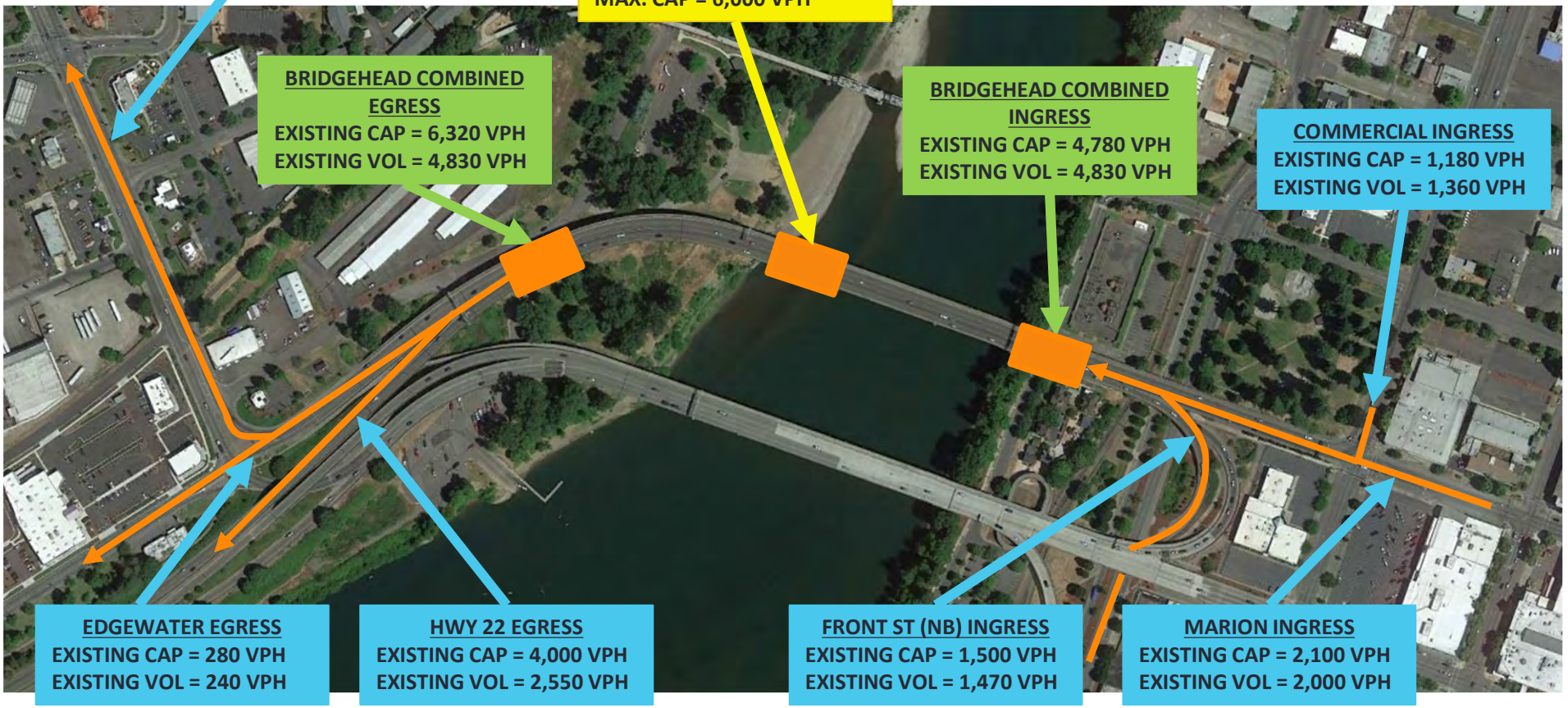
CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Bridge and Bridgehead Capacity Summary

Marion Street Bridge – PM Peak

VPH = vehicles per hour



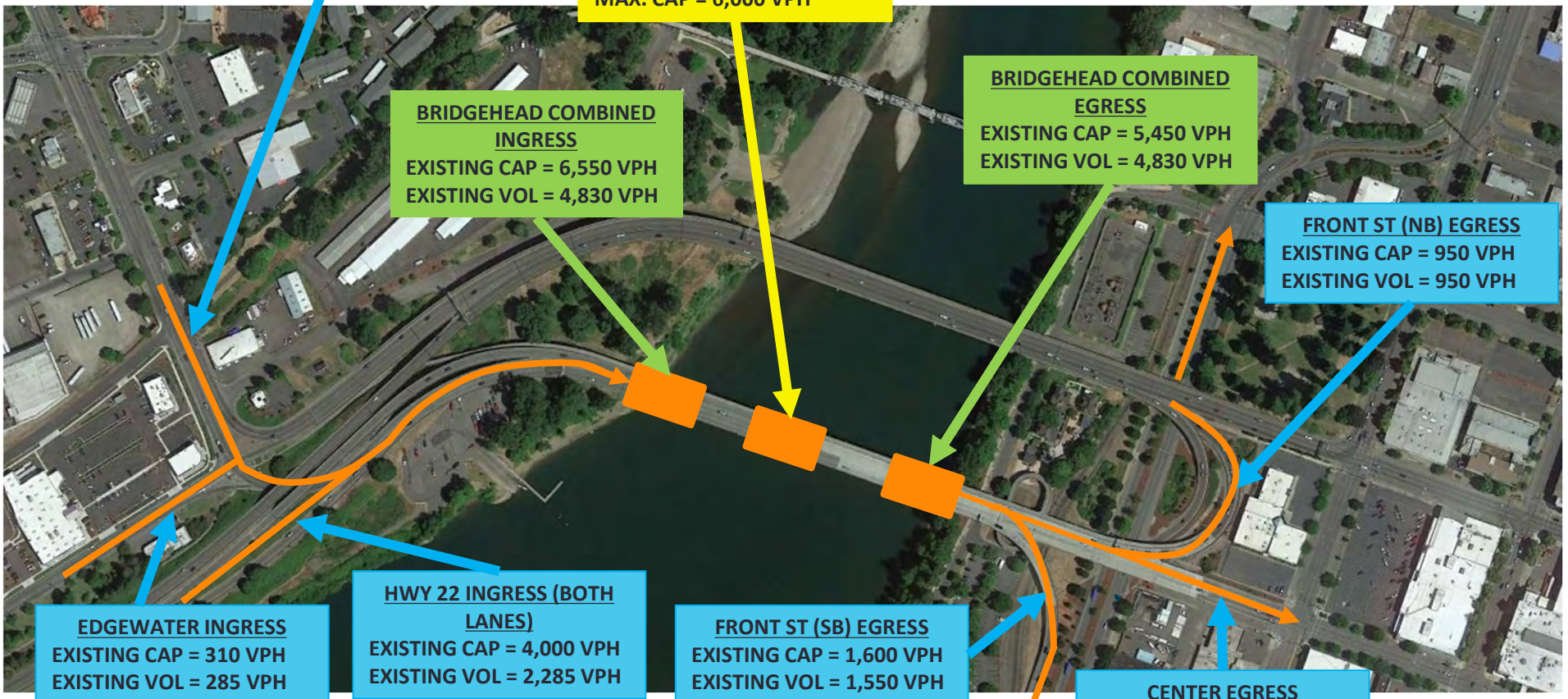
CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Bridge and Bridgehead Capacity Summary

Center Street Bridge – AM Peak

VPH = vehicles per hour



Solutions

Based on previous bridgehead/bridge capacity summary figures, we need solution "packages" rather than just one or two individual solutions. Only addressing one specific capacity issue will not solve overall congestion.

Marion Street Bridge

- Slides 12 – 16 are individual solutions identified at Marion St bridgeheads/bridges
- Slides 17 – 20 are Marion St Solution Packages (x4)
- Slides 21 is Marion St Bridge Solution Package Matrix

Center Street Bridge

- Slides 22 – 28 are individual solutions identified at Center St bridgeheads/bridges
- Slides 29 – 31 are Center St Solution Packages (x3)
- Slides 32 is Center St Bridge Solution Package Matrix

All solutions shown are high-level analysis.

Solution Package Evaluation – Marion Bridge

	Package #1	Package #2	Package #3	Package #4
Maximum Capacity of Package	Ingress: 900 vph Bridge: 2,000 vph Egress: 900 vph Package: 900 vph	Ingress: 850 vph Bridge: 2,000 vph Egress: 900 vph Package: 850 vph	Ingress: 1,400 vph Bridge: 2,000 vph Egress: 1,650 vph Package: 1,400 vph	Ingress: 900 vph Bridge: 1,000 vph Egress: 900 vph Package: 900 vph
Years of Capacity	Commercial St: 0 yrs Marion St: 9 yrs Front St: 20 yrs Bridge: 8 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs	Commercial St: 0 yrs Marion St: 0 yrs Front St: 20 yrs Bridge: 7 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs	Commercial St: 7 yrs Marion St: 0 yrs Front St: 20 yrs Bridge: 15 yrs Marine Dr: 20 yrs Wallace Rd: 20 yrs	Commercial St: 7 yrs Marion St: 9 yrs Front St: 0 yrs Bridge: 8 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs
Cost ($ - $$$$)	$$	$$$	$$$$	$$
Park Impacts	Wallace Marine Park Marion Square Park	Wallace Marine Park Marion Square Park	Wallace Marine Park Marion Square Park	Wallace Marine Park
On-street Parking Impacts	Marion St	-	-	Marion St
Safety	(+) Removes weaving (-) Union-Commercial Bike/Ped conflicts	(+) Removes weaving (-) Union-Commercial Bike/Ped conflicts	(+) Removes weaving	(-) Weaving worsens with five lanes
Property Impacts	Wallace Rd	Wallace Rd	Wallace Rd	Wallace Rd
Key Issues	Worsens Commercial St	No improvements to Marion St	No improvements to Marion St	No improvements for Front St, (not endorsed by ODOT)

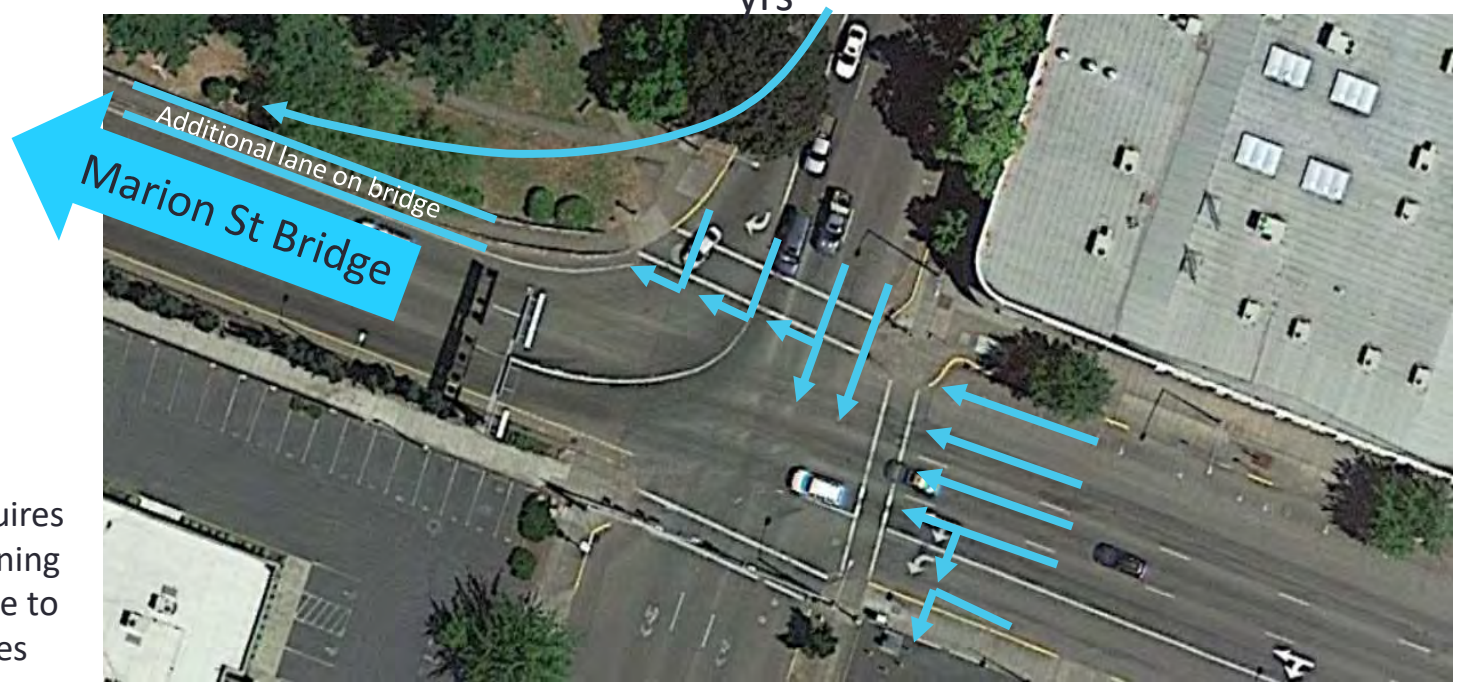
Solutions – Marion St Bridgehead

Commercial Street Ingress Solutions

1. Triple southbound right turn lanes onto Bridge (+400 vph or 34% increase)
2. Single free right turn ramp onto Bridge to Marine Drive only* (+850 vph)

Marion Street Ingress Solutions

1. Remove parking, add additional WB travel lane* (+500 vph or 24%)

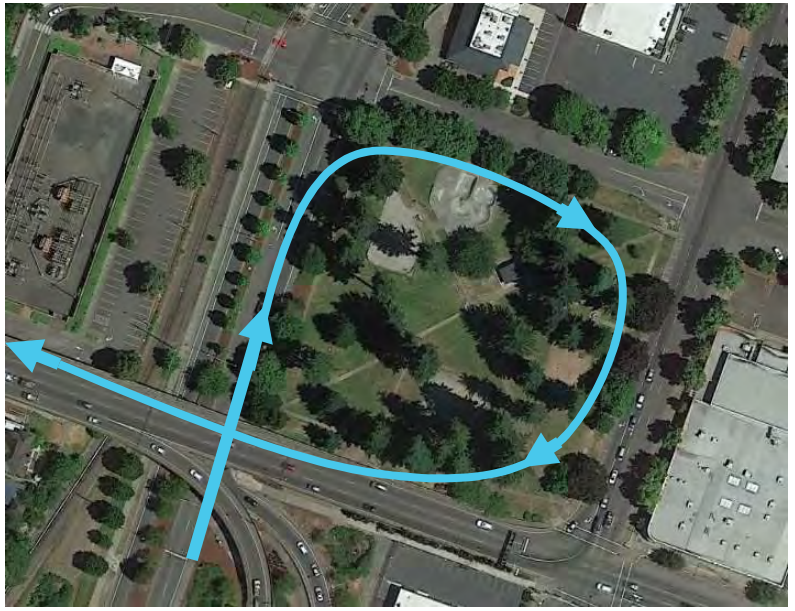


*requires widening bridge to 5 lanes

Solutions – Marion St Bridgehead

Front Street Ingress Solutions

1. Add a loop ramp from Front St (NB) over Marion Square Park on Marion St Bridge (+1,000 vph)
    - Requires 5th lane on bridge
    - Eliminates potential capacity improvements on Marion Street and Commercial Street as previously noted



Solutions – Marion St Bridgehead

Front Street Ingress Solutions

2. Remove weaving on bridge
   - No improvements, requires restricting Front Street on-ramp (red) to Hwy22 volumes only. Removed 600 vehicles headed to West Salem rerouted to Union St and Commercial St (green)

Solutions – Marion St Bridge

Marion Bridge Solutions

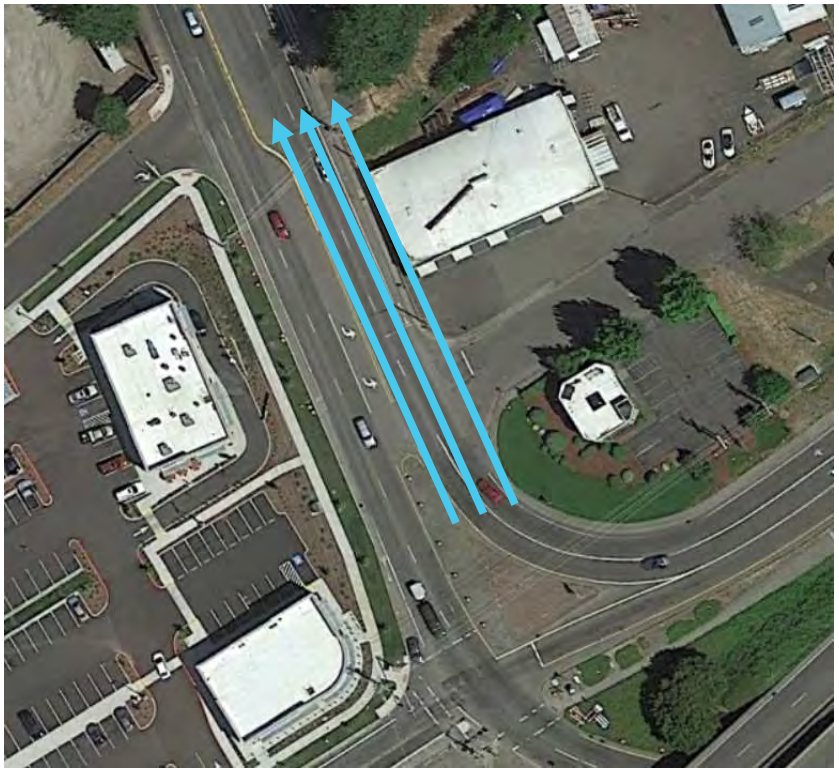
1. Remove weaving – requires restricting vehicles on Front St on-ramp to Hwy 22 Egress only as shown in previous slide (+800 vph or 18% increase on bridge)
2. Add 5th lane - combine with remove weaving (+2,000 vph or 44% increase) – figure below

To add 5th lane on bridge, remove jersey barrier and sidewalk on north side of bridge

Solutions – Marion St Bridge

Wallace Road Egress Solutions

1. Marine Drive off-ramp (+900 vph) – figure left
2. Widen Wallace Road to 3 three receiving lanes up to Glen Creek Road (+750 vph or 37% increase) – figure right



Solution Packages – Marion St Bridge

Package #1

Summary:

Improves Front Street, Marion St, and Wallace

Worsens Commercial St

Maximum capacity of package = 900 vph

Solution Packages – Marion St Bridge

Package #2

Summary:

Improves Front Street, Commercial St, and Wallace

No improvements for Marion St

Maximum capacity of package = 850 vph

Solution Packages – Marion St Bridge

Package #3

Summary:

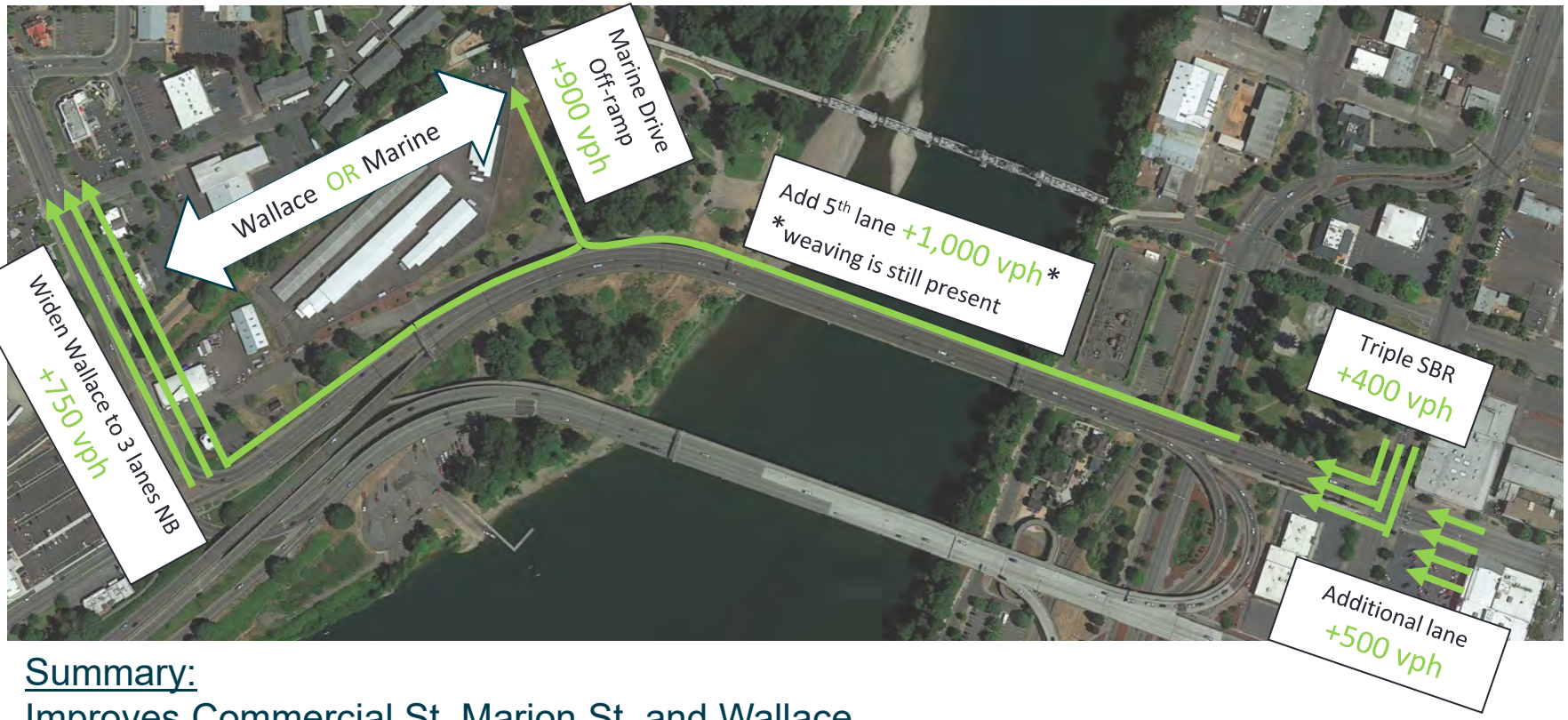
Improves Front Street, Commercial St, and Wallace

No improvements for Marion St

Maximum capacity of package = 1,400 vph

Solution Packages – Marion St Bridge

Package #4



Summary:

Improves Commercial St, Marion St, and Wallace

Weaving on bridge still occurs and with five lanes, **previously not endorsed by ODOT**

No improvements for Front St

Maximum capacity of package = 900 vph

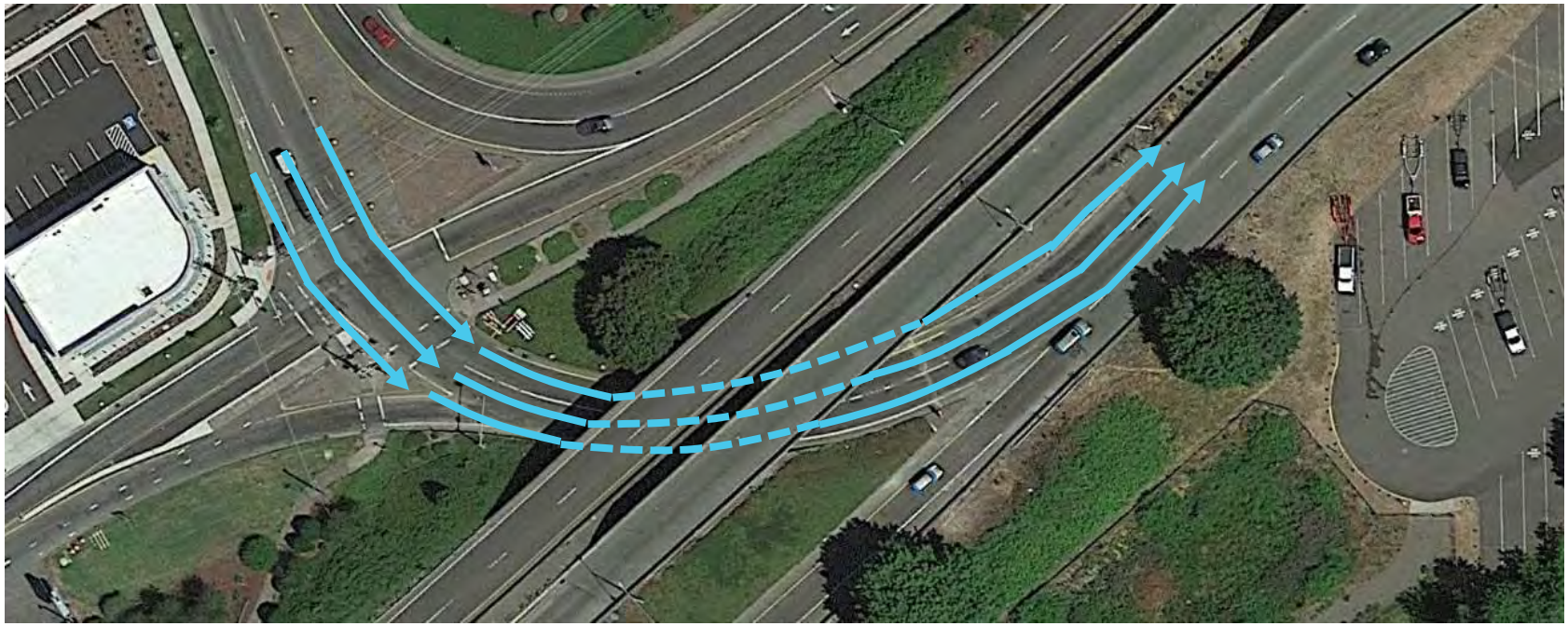
Solution Package Evaluation – Marion Bridge

	Package #1	Package #2	Package #3	Package #4
Maximum Capacity of Package	Ingress: 900 vph Bridge: 2,000 vph Egress: 900 vph Package: 900 vph	Ingress: 850 vph Bridge: 2,000 vph Egress: 900 vph Package: 850 vph	Ingress: 1,400 vph Bridge: 2,000 vph Egress: 1,650 vph Package: 1,400 vph	Ingress: 900 vph Bridge: 1,000 vph Egress: 900 vph Package: 900 vph
Years of Capacity	Commercial St: 0 yrs Marion St: 9 yrs Front St: 20 yrs Bridge: 8 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs	Commercial St: 0 yrs Marion St: 0 yrs Front St: 20 yrs Bridge: 7 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs	Commercial St: 7 yrs Marion St: 0 yrs Front St: 20 yrs Bridge: 15 yrs Marine Dr: 20 yrs Wallace Rd: 20 yrs	Commercial St: 7 yrs Marion St: 9 yrs Front St: 0 yrs Bridge: 8 yrs --- Marine Dr: 20 yrs OR Wallace Rd: 20 yrs
Cost ($ - $$$$)	$$	$$$	$$$$	$$
Park Impacts	Wallace Marine Park Marion Square Park	Wallace Marine Park Marion Square Park	Wallace Marine Park Marion Square Park	Wallace Marine Park
On-street Parking Impacts	Marion St	-	-	Marion St
Safety	(+) Removes weaving (-) Union-Commercial Bike/Ped conflicts	(+) Removes weaving (-) Union-Commercial Bike/Ped conflicts	(+) Removes weaving	(-) Weaving worsens with five lanes
Property Impacts	Wallace Rd	Wallace Rd	Wallace Rd	Wallace Rd
Key Issues	Worsens Commercial St	No improvements to Marion St	No improvements to Marion St	No improvements for Front St, (not endorsed by ODOT)

Solutions – Center St Bridgehead

Wallace Road Ingress Solutions

1. Widen Wallace Road to 3 SB lanes and widen on-ramp to bridge to three lanes (+850 vph or 38% increase)
   - Requires widening bridge to 5 lanes



Solutions – Center St Bridge

Center Bridge Solutions

1. Remove weaving (+800 vph or 17% increase on bridge)
2. Add 5th lane - combine with remove weaving (+2,000 vph or 42% increase) – figure below

To add 5th lane on bridge, remove jersey barrier and sidewalk on north side of bridge

Solutions – Center St Bridgehead

Front Street (SB) Egress Solutions

1. Widen to dual exit ramps

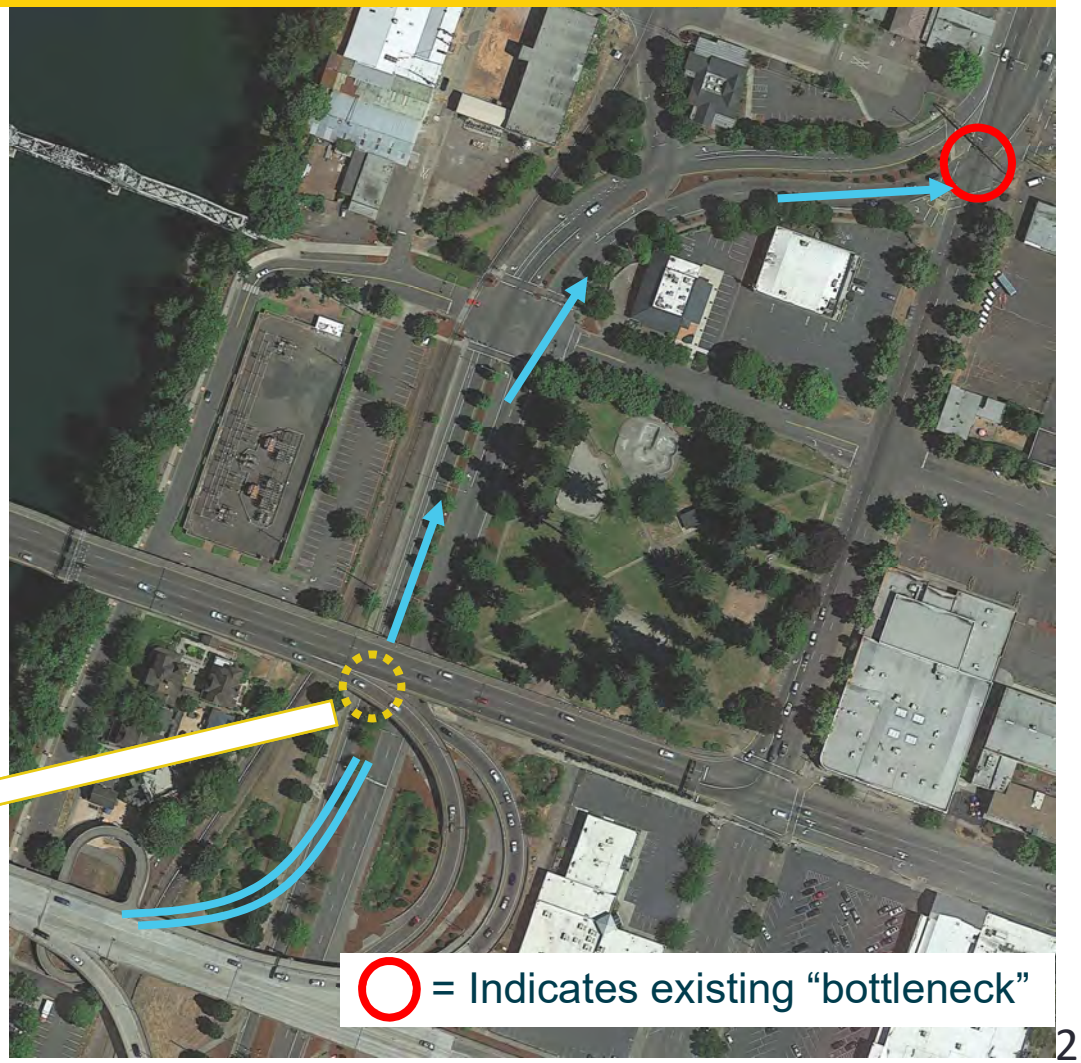
- Improves weaving on bridge and adds ramp capacity
- No net increase in capacity due to "bottleneck" at Front/Commercial/Trade intersection

○ = Indicates existing "bottleneck"

Solutions – Center St Bridgehead

Front Street (NB) Egress Solutions

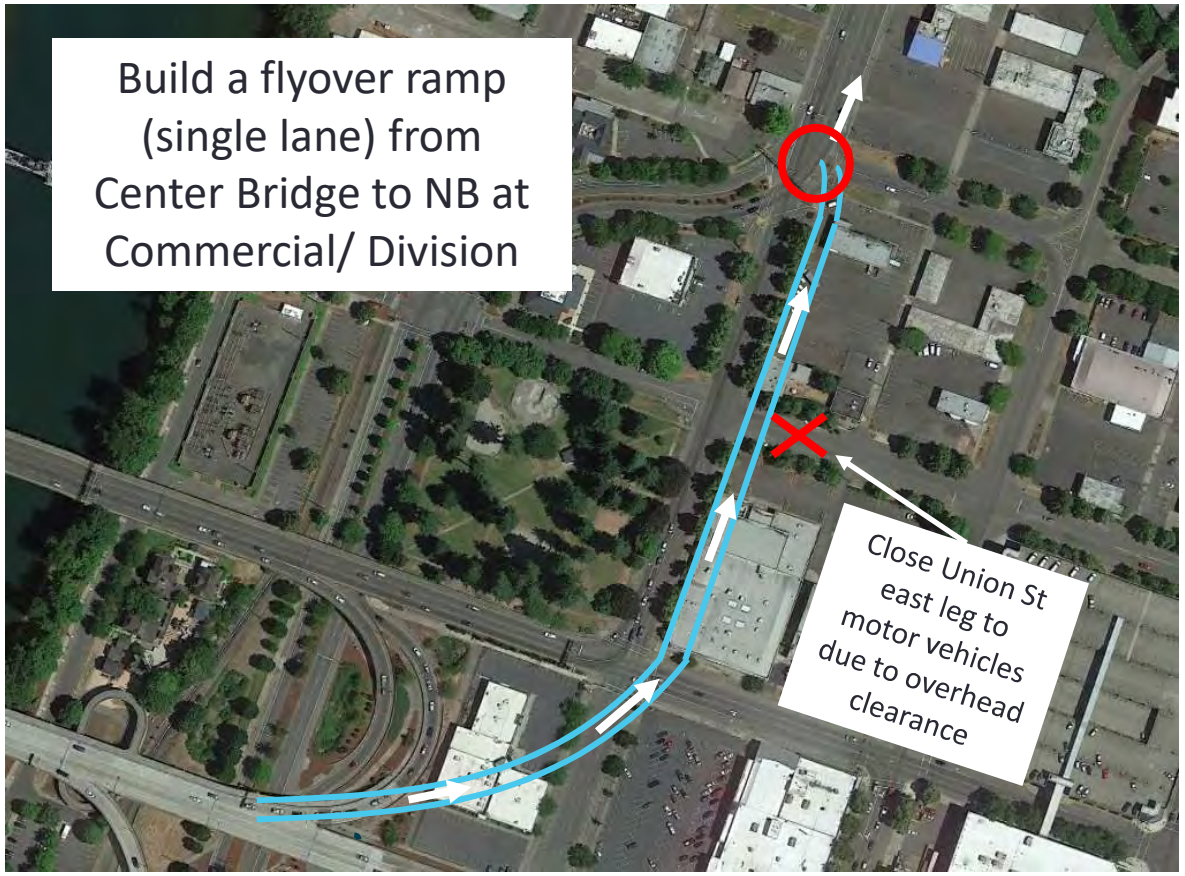
1. Free right turn (remove signal)
2. Build new ramp that merges onto Front St NB
   - Improves off-ramp capacity
   - Limited increase in net capacity (100 vph) due to "bottleneck" at Commercial/Division/ Front intersection



Solutions – Center St Bridge

Front Street (NB) Egress Solutions

2. Flyover ramp to Commercial (+1,000 vph)
   - Would require improvements to Commercial/ Division intersection
   - Would create business, roadway, and visual impacts



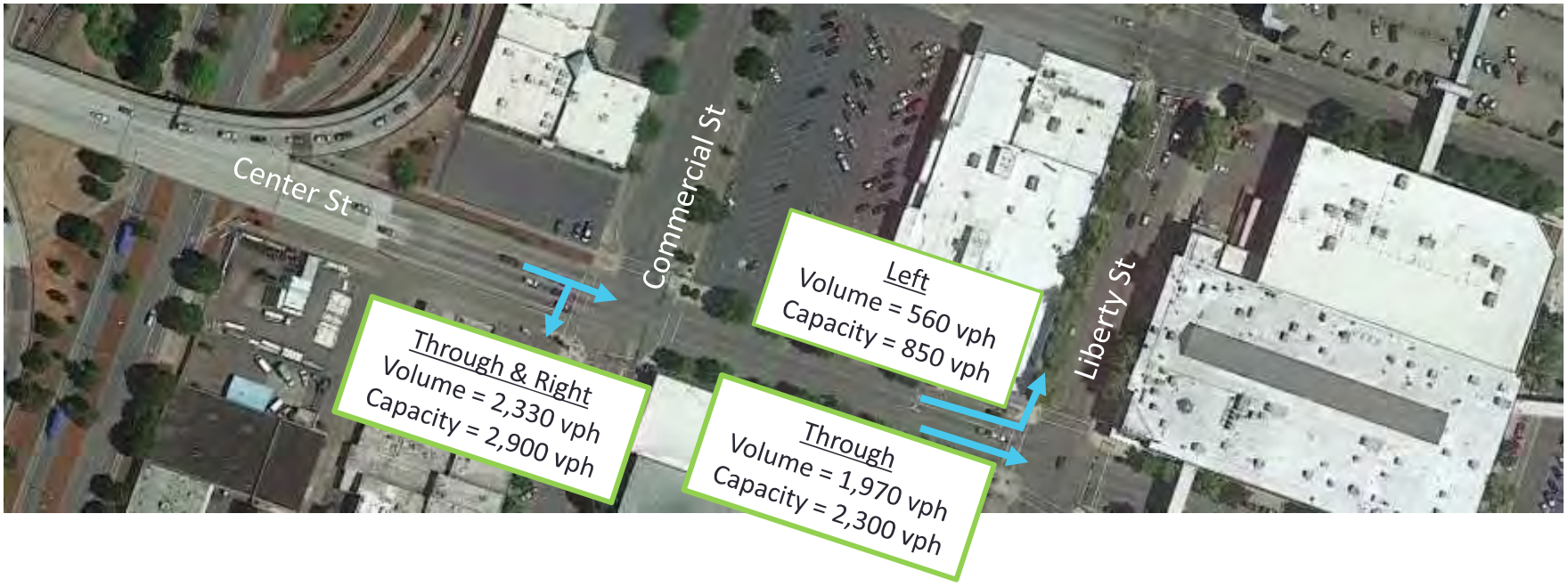
○ = Indicates existing "bottleneck"

Center St Bridgehead

Center Street Egress

AM peak hour volumes and capacities on Center Street

- Existing, available capacity on Center St at Commercial St and Liberty St



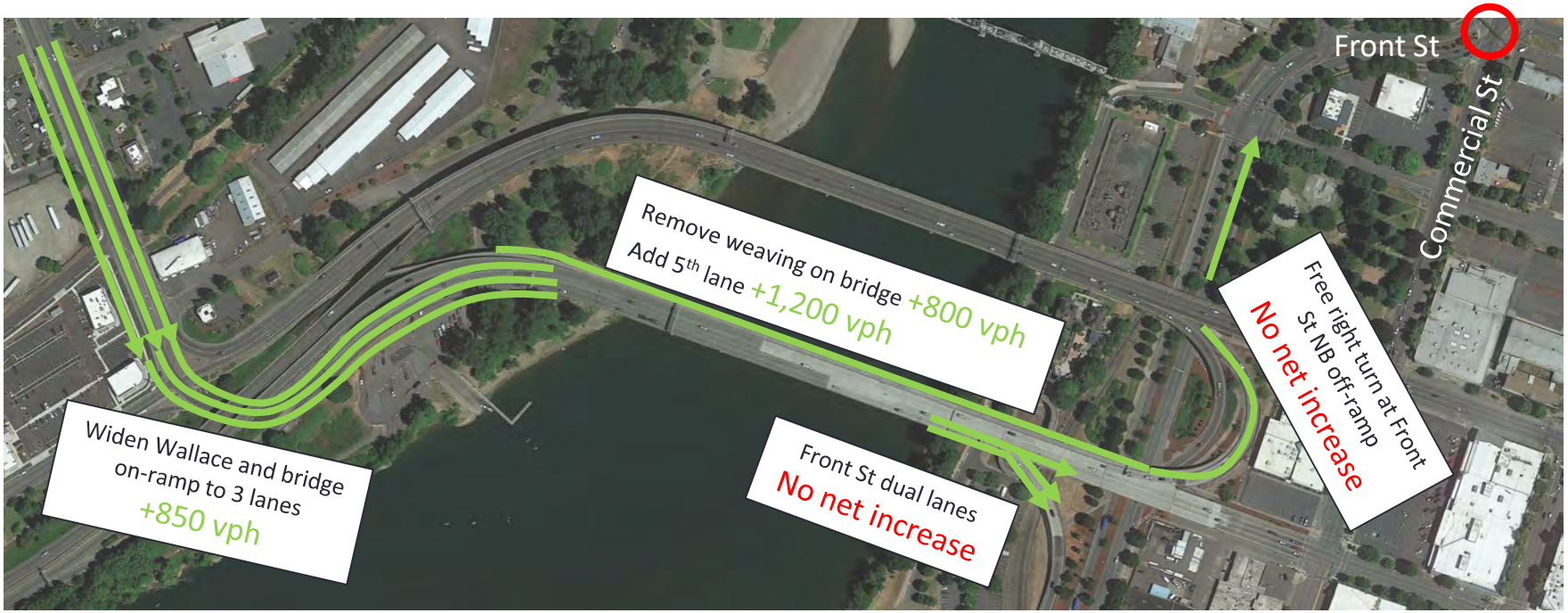
Solutions – Marion Bridge Reversible Lane

Marine Dr Reversible Lane to Marion St

Added eastbound lane (between +900 vph and +1,200 vph)

Solution Packages – Center St Bridge

Package #1



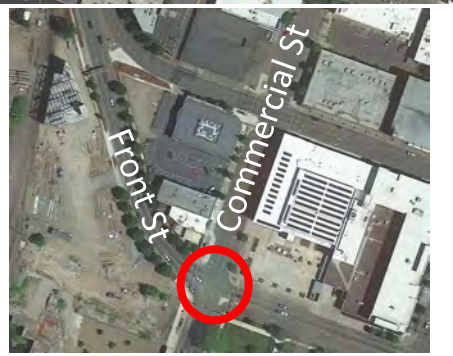
Summary:

Improves Wallace Rd and Front St

Bottlenecks still exist at both Commercial St/Front St intersections

Maximum capacity of package = 850 vph*

*assuming intersection "bottlenecks" are addressed



○ = Indicates existing "bottleneck"

Solution Packages – Center St Bridge

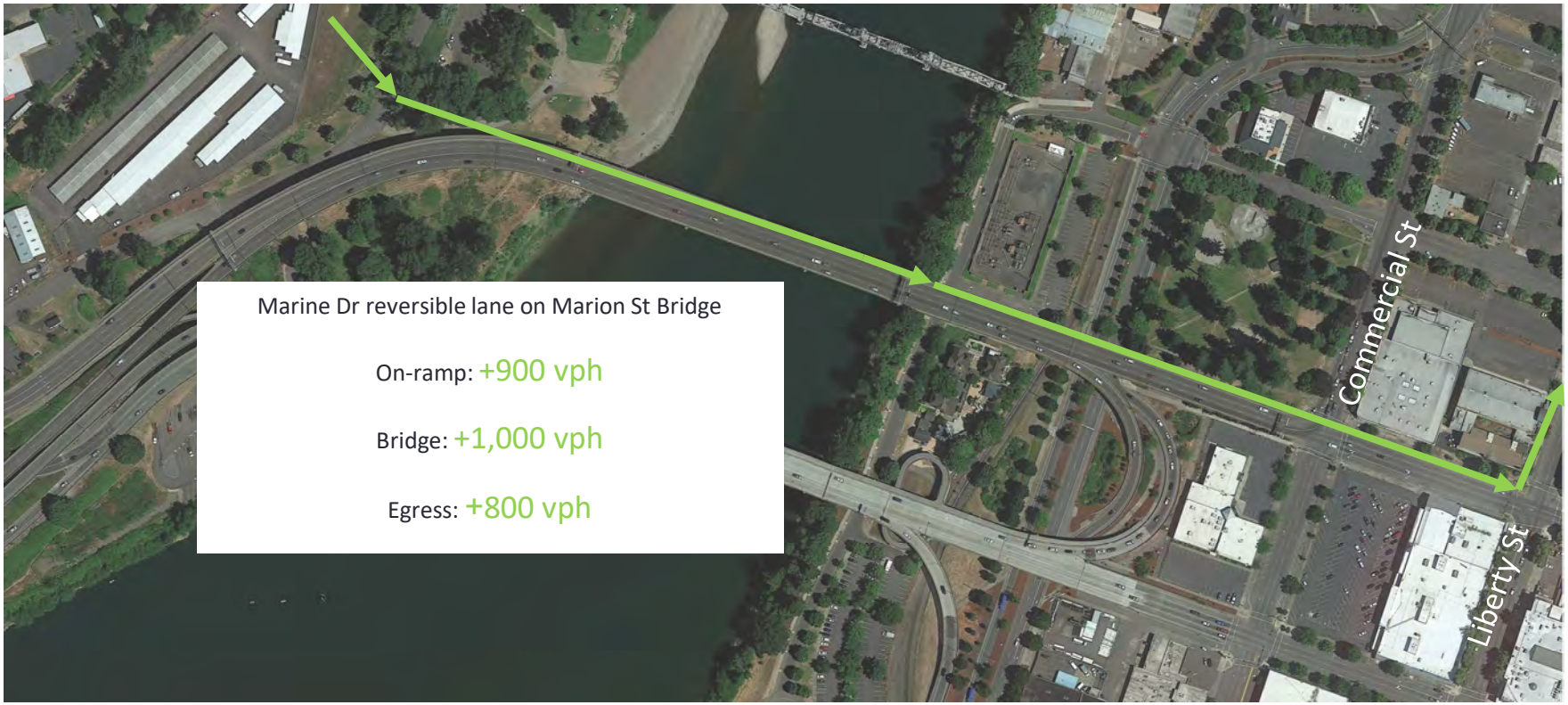
Package #2

Summary:
Improves Wallace Rd and Front St
Bottleneck still exists at Commercial St/Front St intersection
Flyover ramp creates visual, roadway, and building impacts
Maximum capacity of package = 850 vph

○ = Indicates existing "bottleneck"

Solution Packages – Center St Bridge

Package #3



Summary:

Improves Wallace Rd

Can be added to Center Solution Packages #1 or #2

Maximum capacity of package = 800 vph

Solution Package Evaluation – Center Bridge

	Package #1	Package #2	Package #3
Maximum Capacity of Package	Ingress: 850 vph Bridge: 2,000 vph Egress: 850* vph Package: 850 vph *assuming bottlenecks can be addressed	Ingress: 850 vph Bridge: 2,000 vph Egress: 1,850* vph Package: 850 vph *assuming "bottlenecks" can be addressed	Ingress: 900 vph Bridge: 1,000 vph Egress: 800 vph Package: 800 vph
Estimated Years of Capacity	Wallace Rd: 12 yrs Bridge: 10 yrs Front St (SB): 20 yrs* Front St (NB): 20 yrs* Center St: 14 yrs	Wallace Rd: 12 yrs Bridge: 10 yrs Front St (SB): 20 yrs* Flyover ramp: 20 yrs* Center St: 14 yrs	Marine Dr: 20 yrs Bridge: 10 years
Cost ($ - $$$$)	$$	$$$$	$$
Park Impacts	-	-	Wallace Marine Park
Safety	(+) Improves weaving	(+) Improves weaving	(-) Reversible lane
Property Impacts	Wallace Rd	Commercial offices, First Baptist Church, residential building, other businesses	-
Key Issues	"Bottlenecks" need to be addressed	"Bottlenecks" need to be addressed, Flyover ramp has property, visual and roadway impacts	Parking removal on Marion St, impacts PM peak hour capacity potential on Marion St

Solutions – To be considered later

The following list of solution ideas only provide congestion relief when built in conjunction with the bridgehead and bridge solutions identified.

- Add through lanes and right turn lanes on Wallace Road from Hwy 22 to Brush College Road
- Add lane(s) to Commercial St SB from Pine St down to Marion St Bridge
- Extend the two SB lanes on High St north from Union St up to Liberty St
- Improve signage on and leading up to both bridges
- Improve signal timing

Solutions – Removed

The following list of solution ideas were considered but will not be evaluated further. Evaluation determined these do not directly address the study area capacity deficiencies or was deemed infeasible.

- Widen Front Street to arterial standards (north of Division)
- Add an additional lane on Front Street (SB) from Commercial St to Ferry St
- Grade-separated pedestrian crossing of Front St between Riverfront Park and downtown
- Open Musgrave through Wallace Marine Park
- Roundabout at Edgewater Rd/Wallace Rd
- Install a signal at Edgewater/Patterson
- Murlark Ave connector road to Glen Creek Road
- Off-ramp from Marion St Bridge to 2nd St under existing bridges
- Remove signals at Commercial St/Union St and Edgewater Rd/Wallace Rd

H. TASK FORCE MEETING #4

AGENDA FOR JULY 20, 2018

MATERIAL FOR JULY 20, 2018

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

July 20, 2018

MEETING GOALS

1. **Agenda Review and Meeting #3 Recap** ▶ **7:00**
2. **ODOT Coordination on Solution Packages** ▶ **7:10**
3. **Additional Recommendations to Support Solution Packages** ▶ **7:20**
4. **Performance of Solution Packages** ▶ **7:30**
5. **Summary Matrix of Solution Packages** ▶ **8:00**

   Select Solution Package for each bridge to advance for further analysis
6. **Wrap-up and Next Steps** ▶ **8:50**

DATE	MEETING TOPIC
Feb. 23	**1. Project Introduction** a. Task Force goals and process b. Key transportation issues c. Current policies and constraints
April 20	**2. Future Conditions, Transportation Ideas, Evaluation Criteria**
May 18	**3. Transportation Idea Results:** Tier 1 Screening (choose 3)
July 20	**4. Tier 2 Screening:** Select Solution Package for each bridge to advance for further analysis
Aug. 3	**5. Optional Discussion**
September	**6. Final Recommendations**

CITY OF SALEM PUBLIC WORKS DEPARTMENT
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CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Task Force Meeting #4, July 20, 2018

DKS

Prepared by DKS Associates

CITY OF Salem AT YOUR SERVICE

Agenda

- Meeting #3 Recap
- ODOT Coordination
- Additional Recommendations to Support Solution Packages
- Performance of Solution Packages
- Summary Matrix
- Wrap-up and Next Steps

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Review of Solution Packages

	Marion Package #1	Marion Package #2	Marion Package #3	Marion Package #4	Center Package #1	Center Package #2	Center Package #3
Description	Triple SBR on Commercial St, Added lane on Marion St, 5th lane on Bridge, no weaving	Free flow SBR on Commercial St, 5th lane on Bridge, no weaving	Loop ramp over Marion Square Park, Added lane on Marion St, 5th lane on Bridge, no weaving	Triple SBR on Commercial St, Added lane on Marion St, 5th lane on Bridge	Widen Wallace Rd, 5th lane on Bridge, Free flow off-ramp to Front St NB	Widen Wallace Rd, 5th lane on Bridge, Flyover ramp to NB Commercial St	Marine Dr reversible lane on Marion St Bridge
Date of Removal			May 18 (Task Force Meeting #3)			May 18 (Task Force Meeting #3)	June 12 (ODOT coordination meeting)
Reason for Removal			Loop ramp over Marion Square Park would cause large impact to park			Flyover ramp from Center St Bridge would cause significant downtown business impacts	After meeting with ODOT, reversible lane on Marion St Bridge deemed fatal flaw

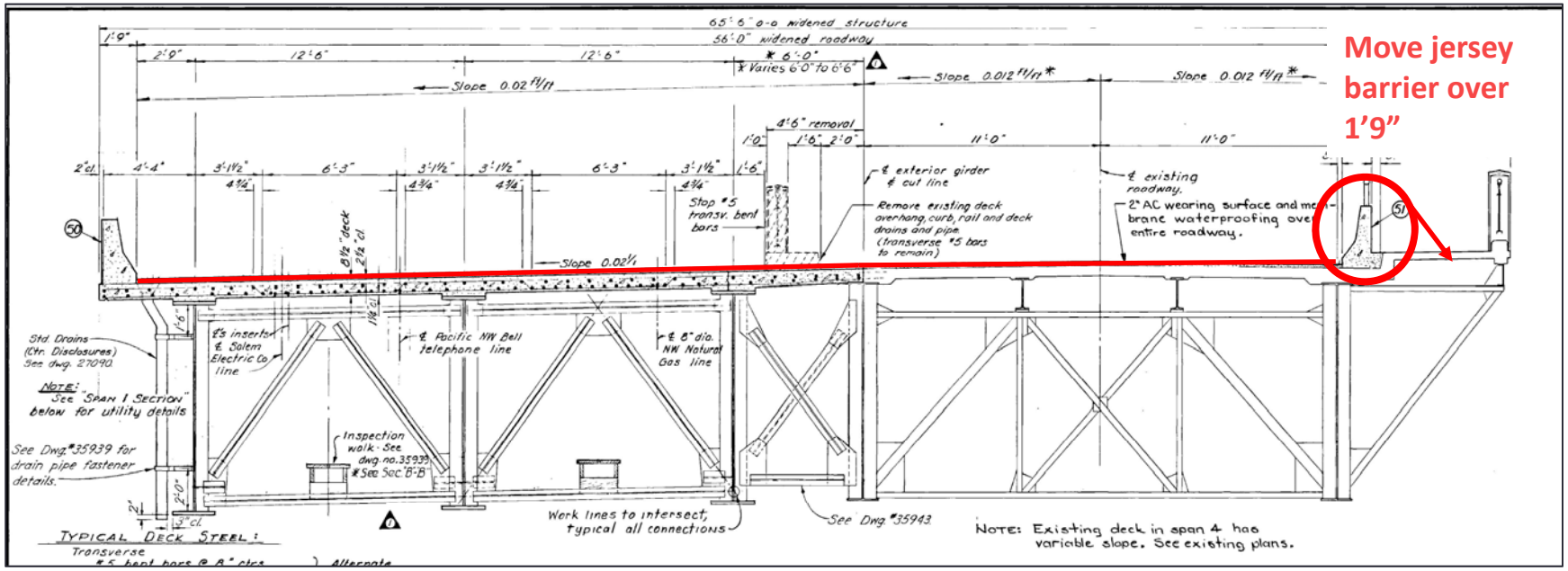
ODOT Coordination Meeting

DKS/City met with ODOT Region 2 Bridge, Traffic and Roadway staff

Date: June 12th, 2018

- Presented the current Marion and Center solution packages
- Reviewed the Marion St and Center St Bridge ODOT construction drawings
- **Confirmed Solution Packages were feasible for Marion Bridge #1, #2, and #4 (see handouts)**

Marion Bridge Construction Drawings



- Existing roadway width = 56'
- Total new roadway width = 57' 9"
- Restripe bridge to have five 11' wide lanes plus 1' 4.5" of shy
- ODOT Design Exceptions will be required due to removal of sidewalk, narrow lanes, and less than 2' of shy distance between travel lanes and barrier

Marion Bridge Construction Drawings

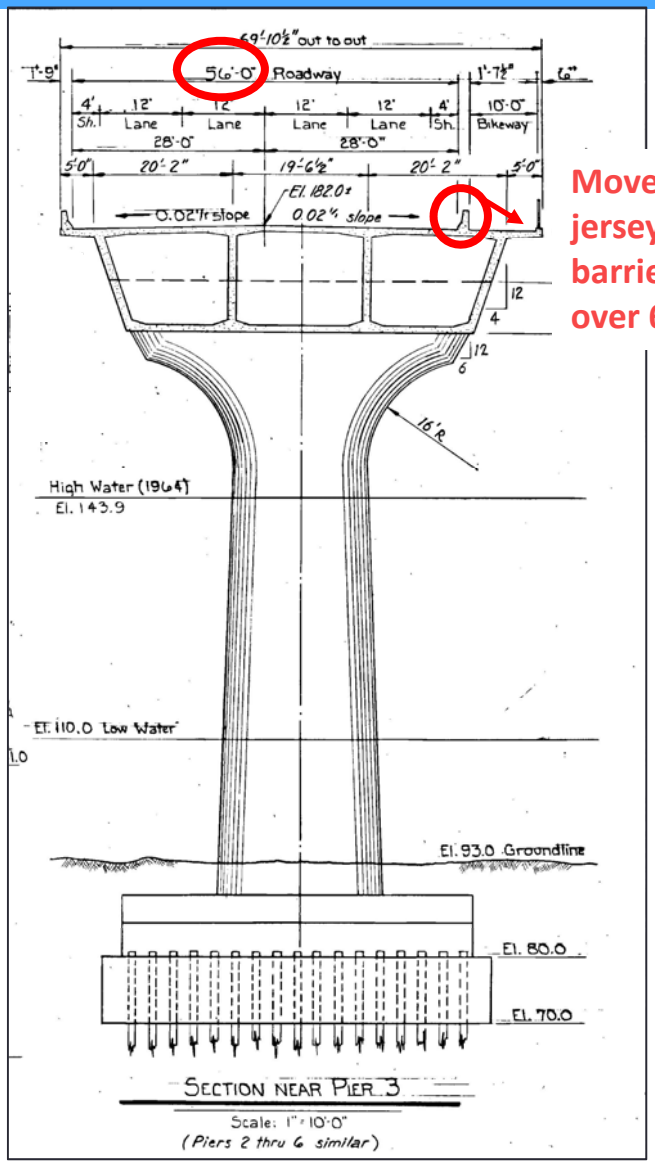
Not enough width for a fifth reversible travel lane, would require physical barrier separating two-way traffic

Removed Center Bridge Solution Package #3

Center Bridge Construction Drawings

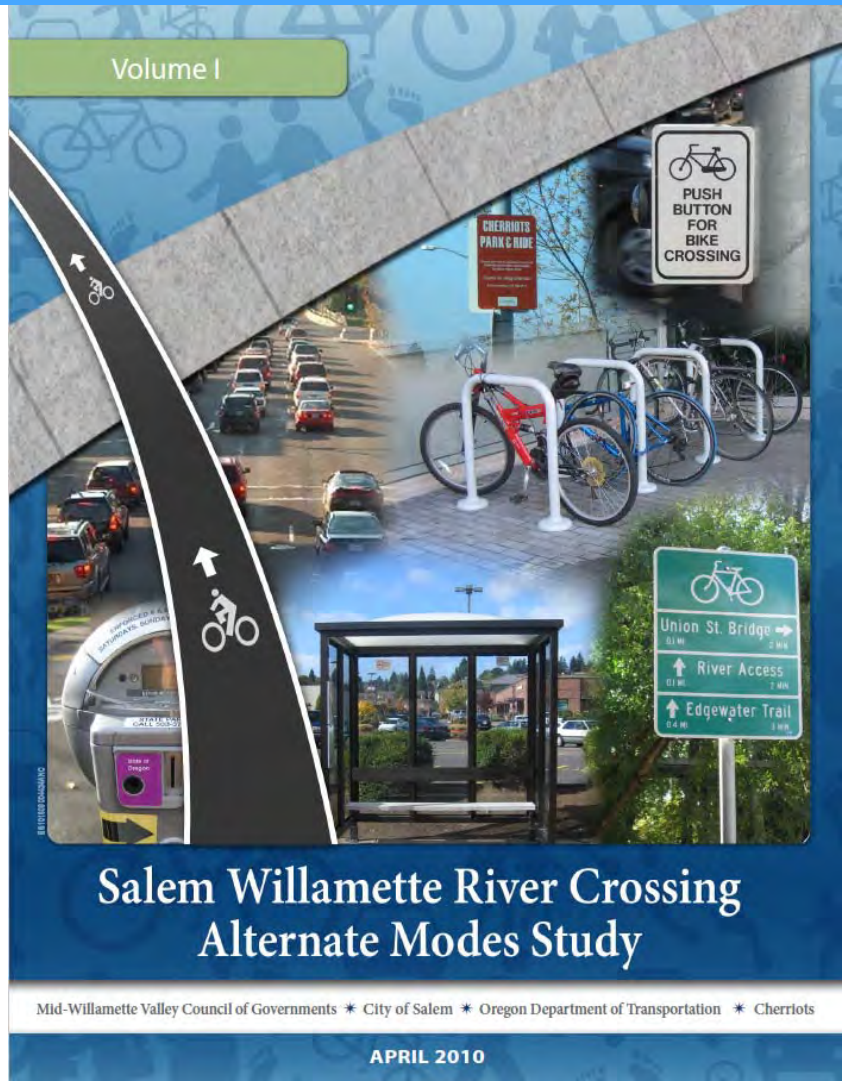
- Existing roadway width = 56’
- Total new roadway width = 62’ 7”
- Maintain 5’ ped walkway on Bridge
- Restripe bridge to have five travel lanes
- No fatal flaws
- ODOT Design Exception required for removal of bike facilities and narrow lanes

Confirmed Center Bridge Solution Package #1



Additional Recommendations to Support Solution Packages

- Beyond Scope of Current Project
- Could form basis for future recommended action or study
- Reviewed:
  - Public Input
  - Salem River Crossing Alternate Modes Study (2010)
- Focus on Actions within City Control (mostly)



Additional Recommendations to Support Solution Packages

- Wallace Marine Park – Park & Walk/Bike to Work
- Bike/pedestrian connections to Union Street Bridge
- Parking Management
- Invest in Downtown Circulator
- Pursue Local Gas Tax

Wallace Marine Park – Park and Walk/Bike

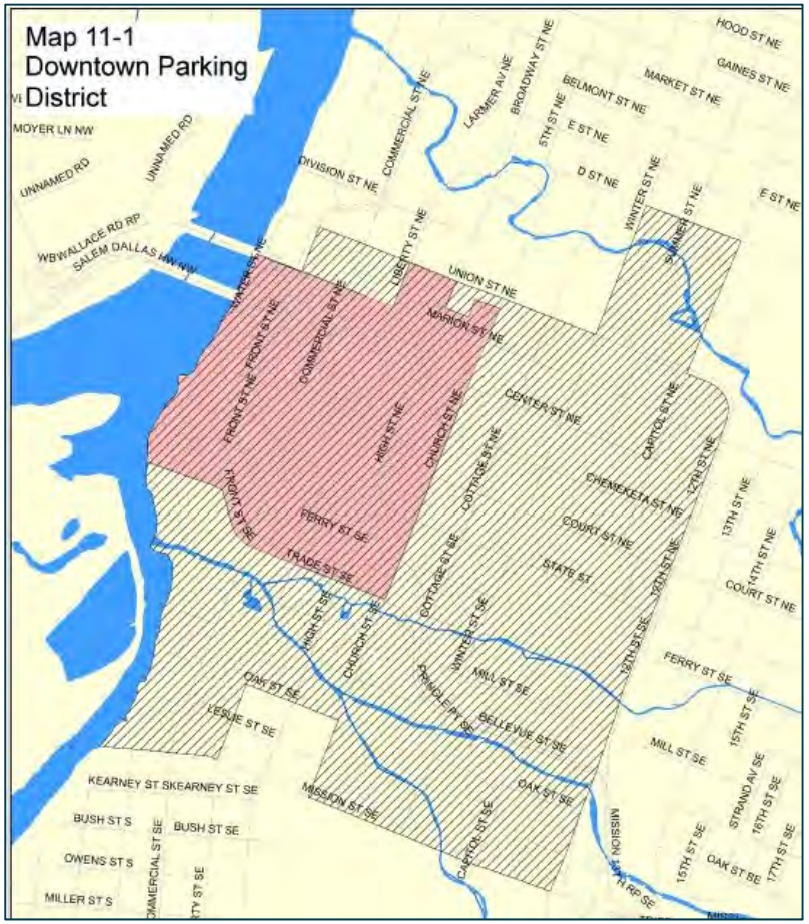
- Could accommodate 40-45 spaces
- Would need input from SPRAB, others
- Possible conflicts with recreational use
- Security, Lighting, Enforcement
- Permits?
- Funding?

Bike/Pedestrian Connections to Union St Bridge

- Continue Existing:
  - Union Street Bikeway
  - Winter Maple Greenway
  - Pringle Creek Path Connection
- Expand Connections:
  - 2nd Street Connection across Wallace Road
  - Marine Drive Multi-use Path
  - Front Street bike lanes and sidewalks
  - East Bank Multi-use Path
  - Other?

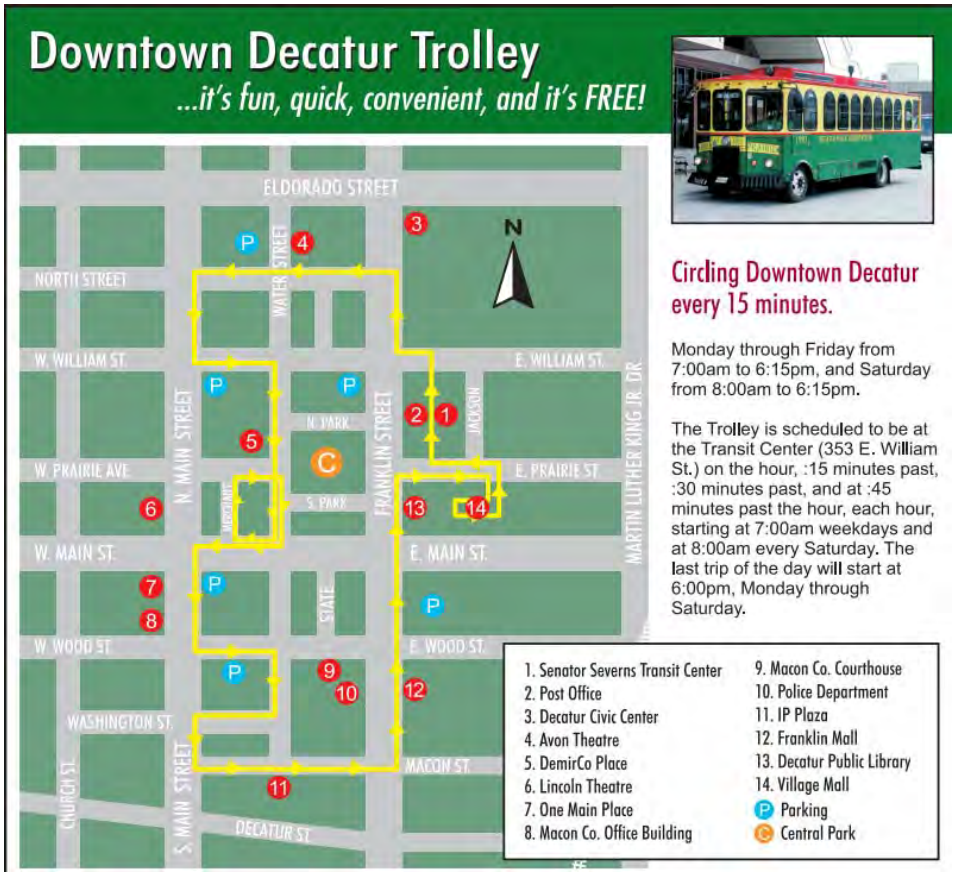
Parking Management

- Suggestions from 2010 Alternate Modes Study
  - Switch from Monthly to Daily Fee Parking
  - Discourage Parking at Peak Periods
    - Peak-period surcharge
    - Early-bird discount
  - Increase pricing for parking:
    - Structures
    - On-street
  - Tax parking spaces?
  - Parking Cash Out Programs



Downtown Circulator/Trolley

- Circulator route to connect major employers, bike parking, and carpool parking with common destinations downtown
  - Possible connections to west Salem?
- Ease of access to bank, restaurants, shopping during lunch may encourage more people to leave personal car at home
- Would likely be joint with Cherriots
- Requires feasibility study and funding



Local Gas Tax

- 24 Cities have Local Gas Tax
- 1 – 5 cents per gallon
- Could support transportation projects – auto, bike, pedestrian
- Is restricted to use in Public right-of-way and can not be used for transit operations
- Requires voter approval (requirement in place since January 2014)

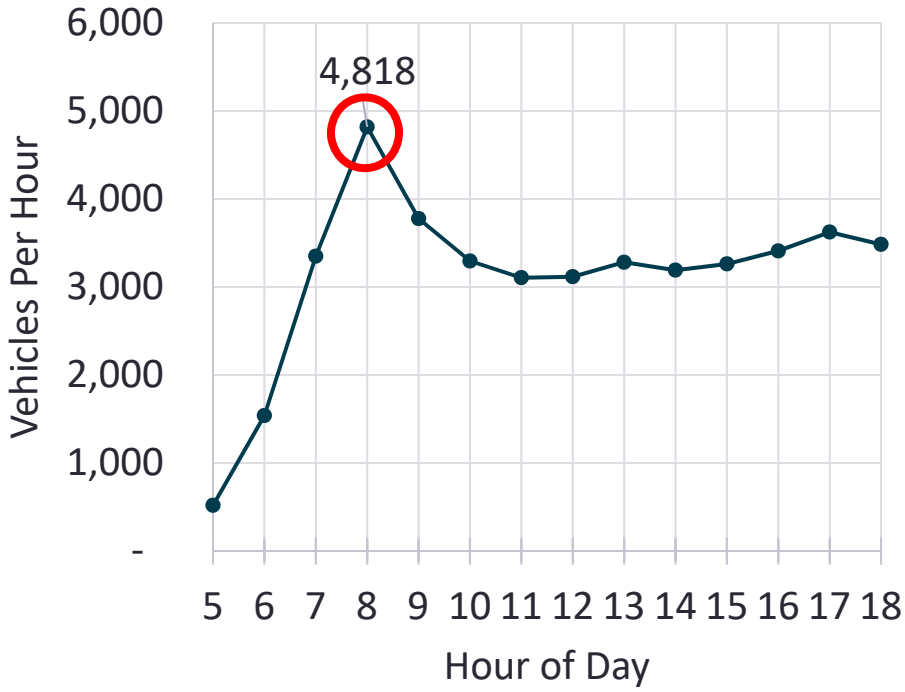
City	Passage Date	Tax Rate (cents/gal.)
Astoria	2007	3 cents
Brookings	2015	4 cents
Canby	2008	3 cents
Coburg	2007	3 cents
Coquille	2007	3 cents
Cornelius	2009	2 cents
Cottage Grove	2003	3 cents
Dundee	2003	2 cents
Eugene	2003	5 cents
Hood River	2009	3 cents
Milwaukie	2007	2 cents
Newport	2009	1 cent (Nov.-May) 3 cents (June-Oct.)
Oakridge	2004	3 cents
Phoenix	2015	2 cents
Sandy	2002	1 cent
Sisters	2009	3 cents
Springfield	2003	3 cents
The Dalles	1980	3 cents
Tigard	2006	3 cents
Troutdale	2015	3 cents
Tillamook	1982	1.5 cents
Veneta	2004	3 cents
Warrenton	2007	3 cents
Woodburn	1989	1 cent

• ODOT's Fuel Tax Disclosures

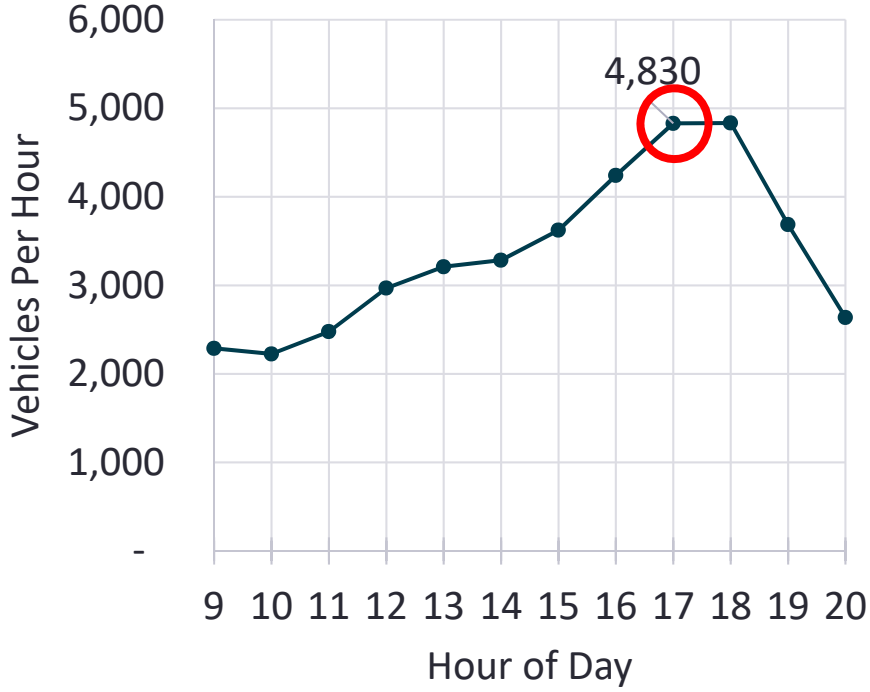
Solution Packages' Performance

Peak Hour for Travel Times and Queuing Represents:

Center Street Bridge – morning peak hour

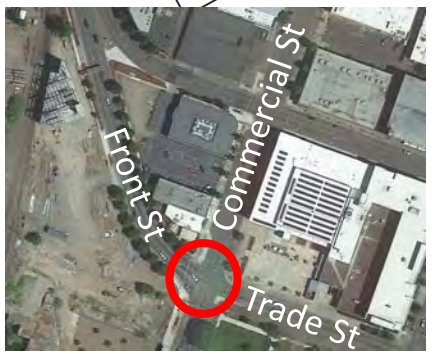


Marion Street Bridge – evening peak hour



CONGESTION RELIEF TASK FORCE
A Technical Review of Transportation Infrastructure Options

Solution Package – Center Bridge #1



Summary:

Improves Wallace Rd and Front St

Bottlenecks still exist at both Commercial St/Front St intersections

Maximum capacity of package = 850 vph*

*assuming "bottleneck" intersections are improved (improvements shown on following slides)

○ = Indicates existing "bottleneck"

Solution Package – Center Bridge #1

"Bottleneck" Improvement at Commercial St/Front St

<u>Assumptions:</u>

- Widen to three northbound lanes on Front St and Commercial St
- Signal modifications at Commercial St/Front St/Division St
- Would require right-of-way

Solution Package – Center Bridge #1

"Bottleneck" Improvements at Commercial St/Trade St

Assumptions:

- Dual exclusive through lanes, dual exclusive right turn lanes
- Carry the outside EBR turn lane back 500 feet
- Would require right-of-way

Solution Package – Center Bridge #1

Travel Times (mins)

Start	End	AM Peak (Existing)	**AM Peak (Build 2018)**	**AM Peak (Build 2028)**
A	E	11 mins	**6 mins**	**10 min**
B	E	10 mins	**5 mins**	**9 min**
C	E	7 mins	**4 mins**	**7 min**
D	E	5 mins	**3 mins**	**5 min**

Solution Package – Center Bridge #1

Queuing – 2028 AM Peak

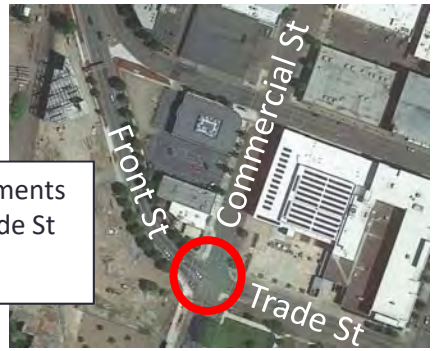
- Improves queuing and congestion on Wallace Rd
- Congestion would return to current conditions by approximately year 2030 (12 years of growth)
- Maintains similar operations for Highway 22

Solution Package – Center Bridge #1

Cost Estimate

Summary:

Total: $100 million - $115 million



"Bottleneck" improvements at Commercial St/Trade St
$7 - $9

Solution Packages – Marion St Bridge

Package #1a (Marine Dr) #1b (Wallace Rd)

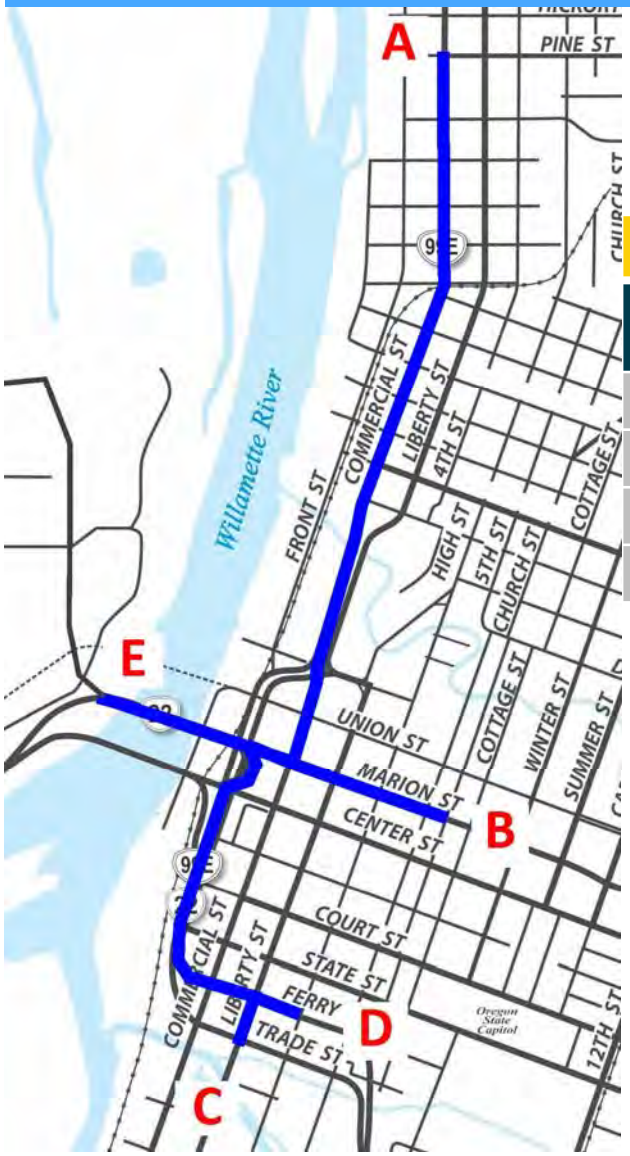
Summary:

Improves Front Street, Marion St, and Wallace

Worsens Commercial St

Maximum capacity of package = 900 vph

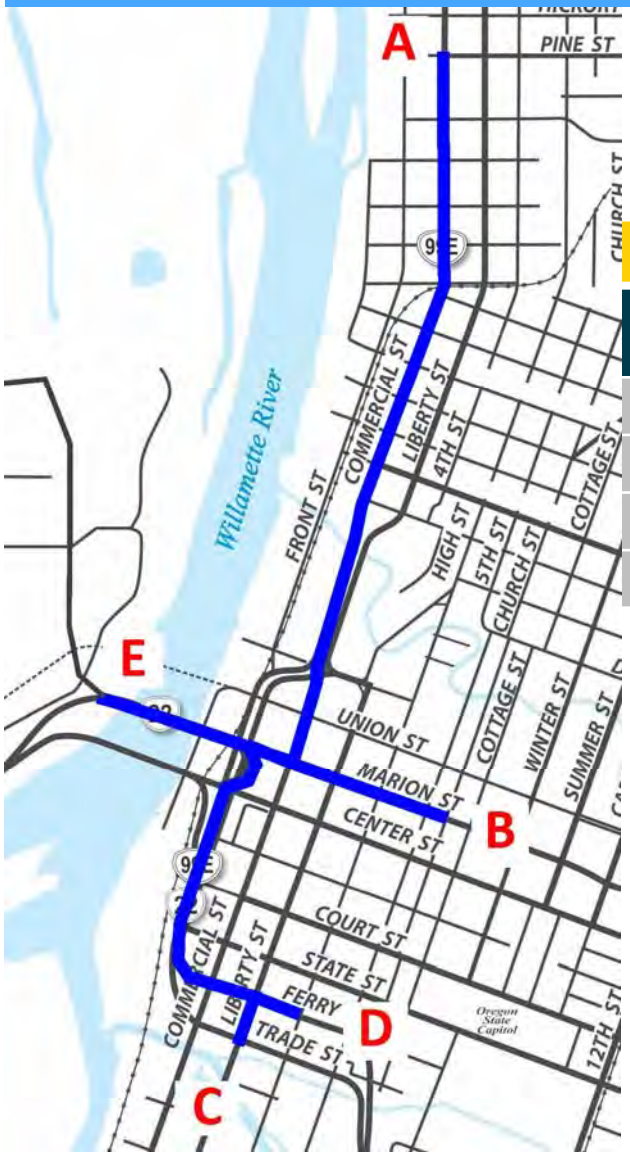
Solution Package – Marion Bridge #1a (Marine Drive)



Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**22 mins**	**36 mins**
B	E	9 mins	**5 mins**	**10 mins**
C	E	8 mins	**15 mins**	**22 mins**
D	E	8 mins	**16 mins**	**23 mins**

Solution Package – Marion Bridge #1b (Wallace Rd)



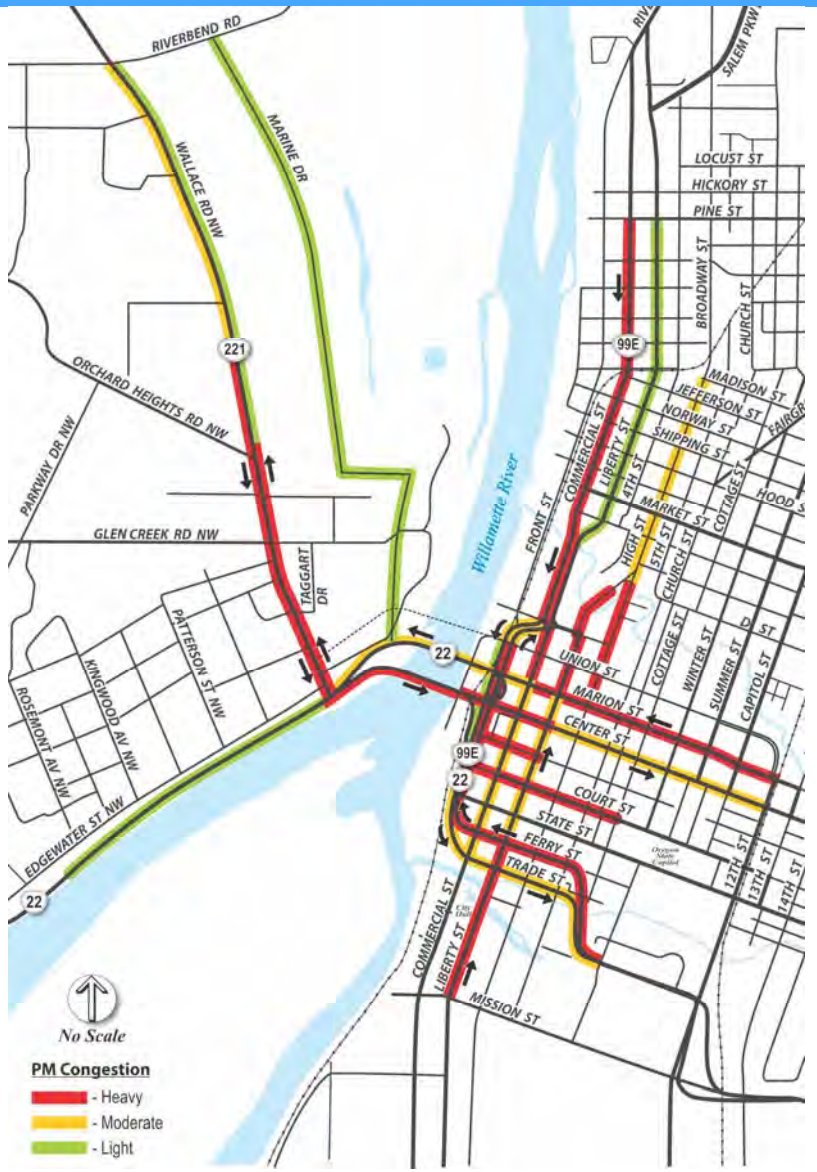
Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**20 mins**	**32 mins**
B	E	9 mins	**4 mins**	**9 mins**
C	E	8 mins	**13 mins**	**20 mins**
D	E	8 mins	**16 mins**	**22 mins**

Solution Package – Marion Bridge #1

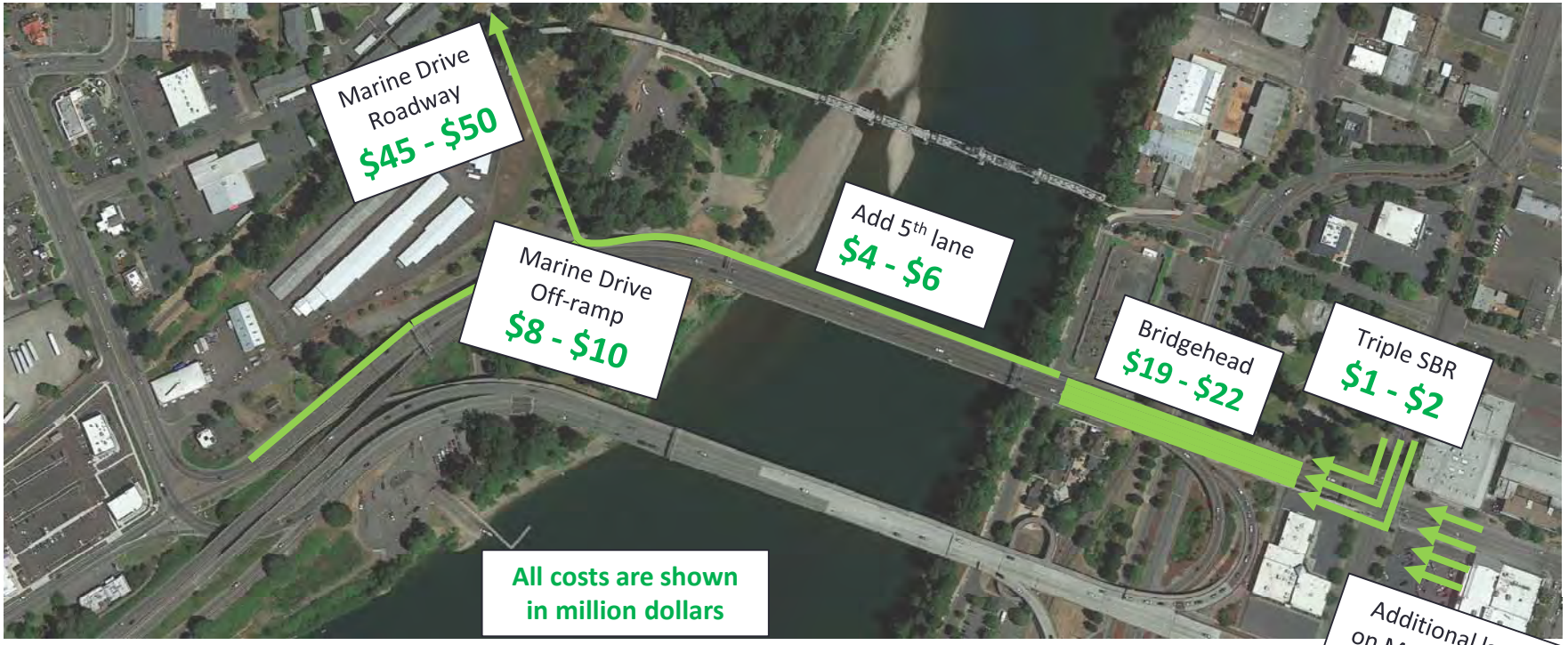
Queuing – 2028 PM Peak

- Rerouted Front St traffic causes additional delay on Center Bridge and backs up into west Salem
- Increases queuing and congestion on Front St NB, Liberty St, Ferry St, and Commercial St SB
- Marion St – only facility with short-term improvements



Solution Package – Marion Bridge #1a

Cost Estimate (with Marine Dr)



Summary:

Total #1a (with Marine Dr): $80 million - $95 million

Solution Package – Marion Bridge #1b

Cost Estimate (with Wallace Rd)

Summary:

Total #1b (with Wallace Rd): $55 million - $65 million

Solution Packages – Marion St Bridge

Package #2a (Marine Dr) and #2b (Wallace Rd)

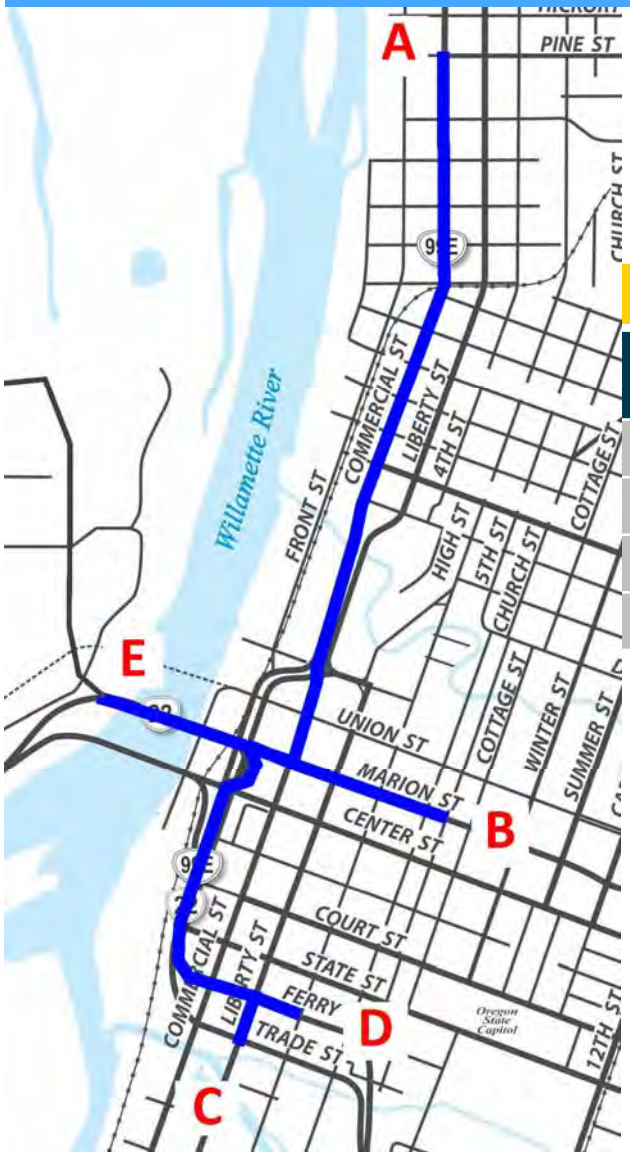
Summary:

Improves Front Street, Commercial St, and Wallace

No improvements for Marion St

Maximum capacity of package = 850 vph

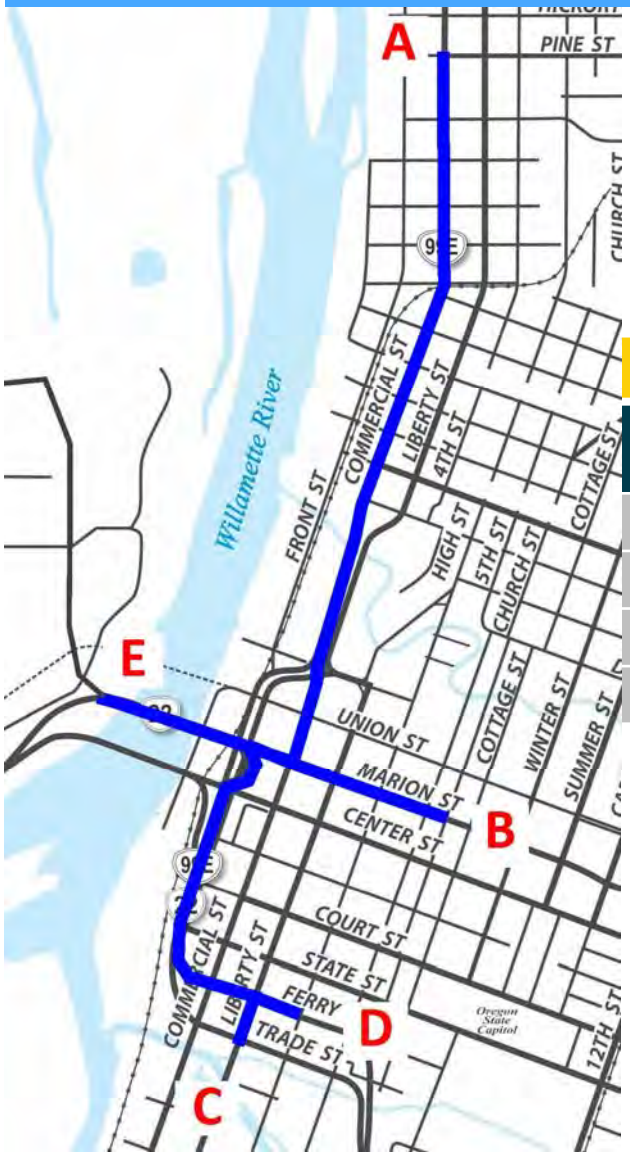
Solution Package – Marion Bridge #2a (Marine Dr)



Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**20 mins**	**21 mins**
B	E	9 mins	**9 mins**	**13 mins**
C	E	8 mins	**13 mins**	**14 mins**
D	E	8 mins	**14 mins**	**15 mins**

Solution Package – Marion Bridge #2b (Wallace Rd)



Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**18 mins**	**19 mins**
B	E	9 mins	**9 mins**	**13 mins**
C	E	8 mins	**13 mins**	**14 mins**
D	E	8 mins	**14 mins**	**15 mins**

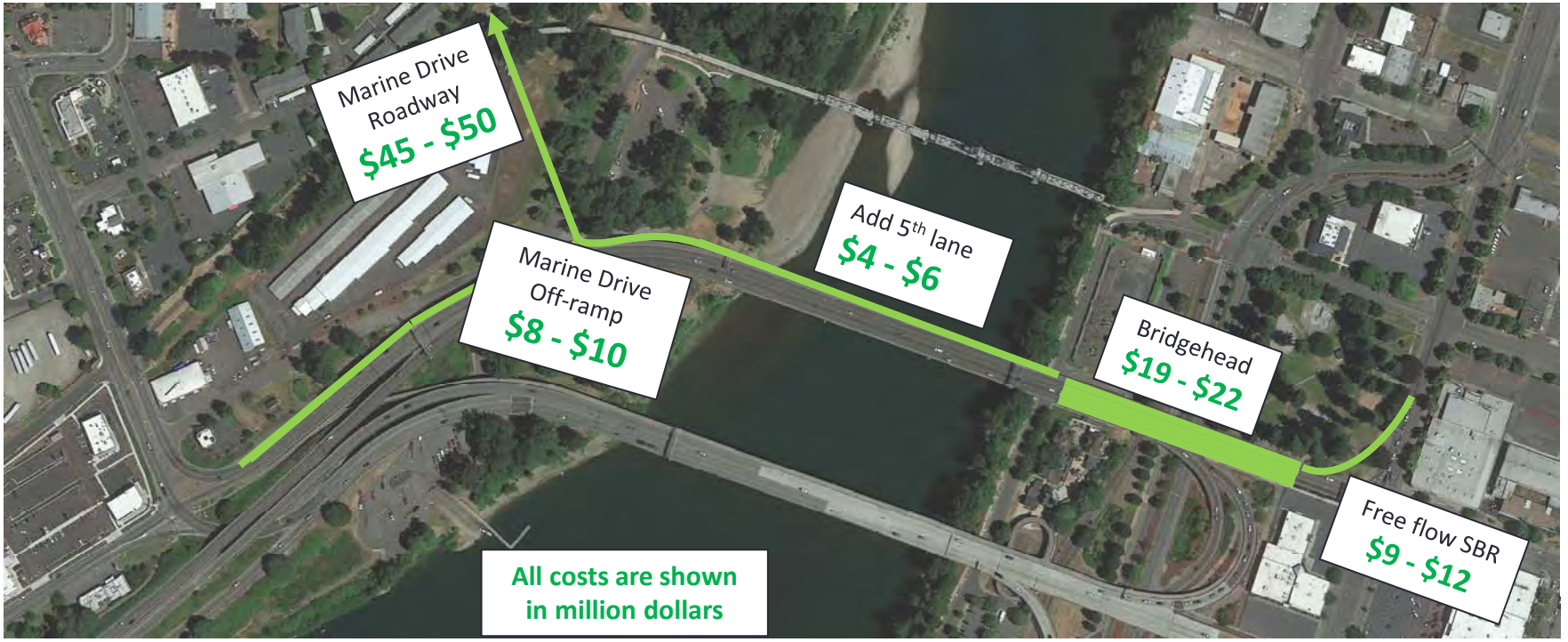
Solution Package – Marion Bridge #2

Queuing – 2028 PM Peak

- Rerouted Front St traffic causes additional delay on Center Street Bridge and backs up into west Salem
- Increases queuing and congestion on Front St NB, Ferry St, Liberty St, Marion St, and Commercial St SB

Solution Package – Marion Bridge #2a

Cost Estimate (with Marine Dr)

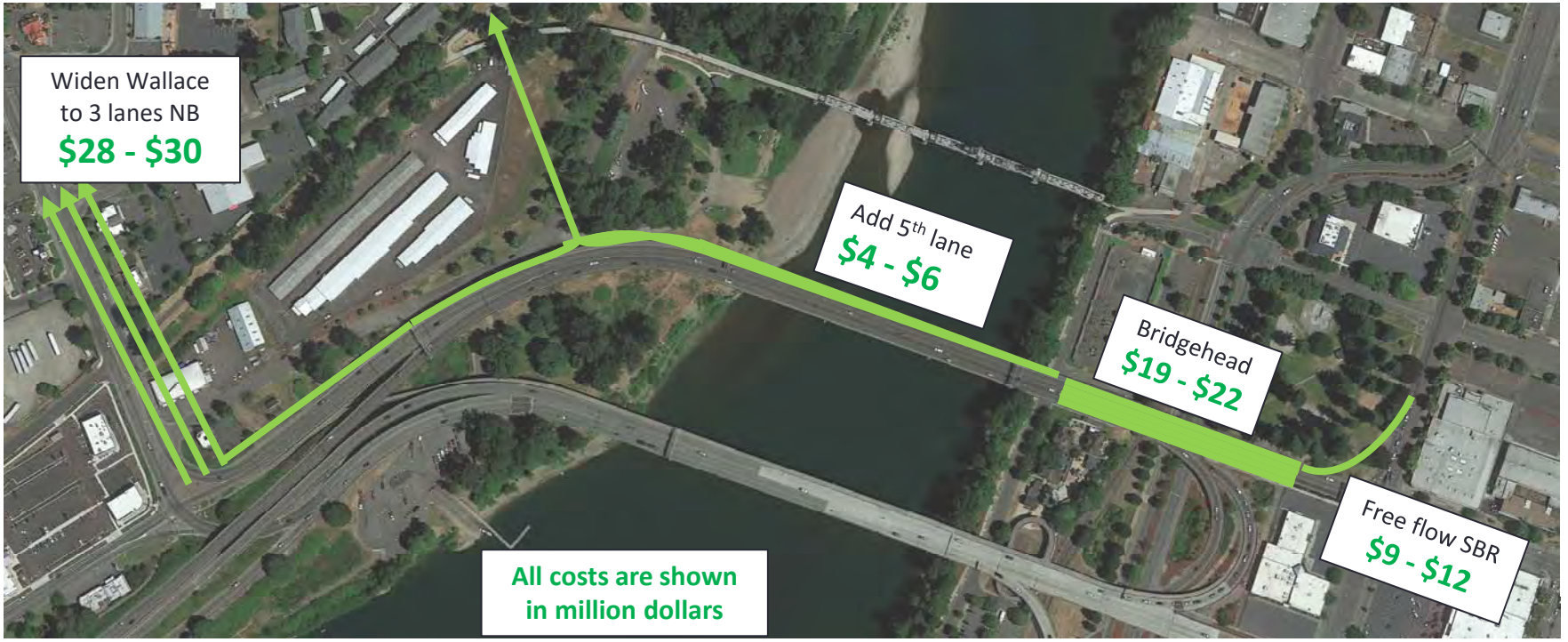


Summary:

Total #2a (with Marine Dr): $85 million - $100 million

Solution Package – Marion Bridge #2b

Cost Estimate (with Wallace Road)

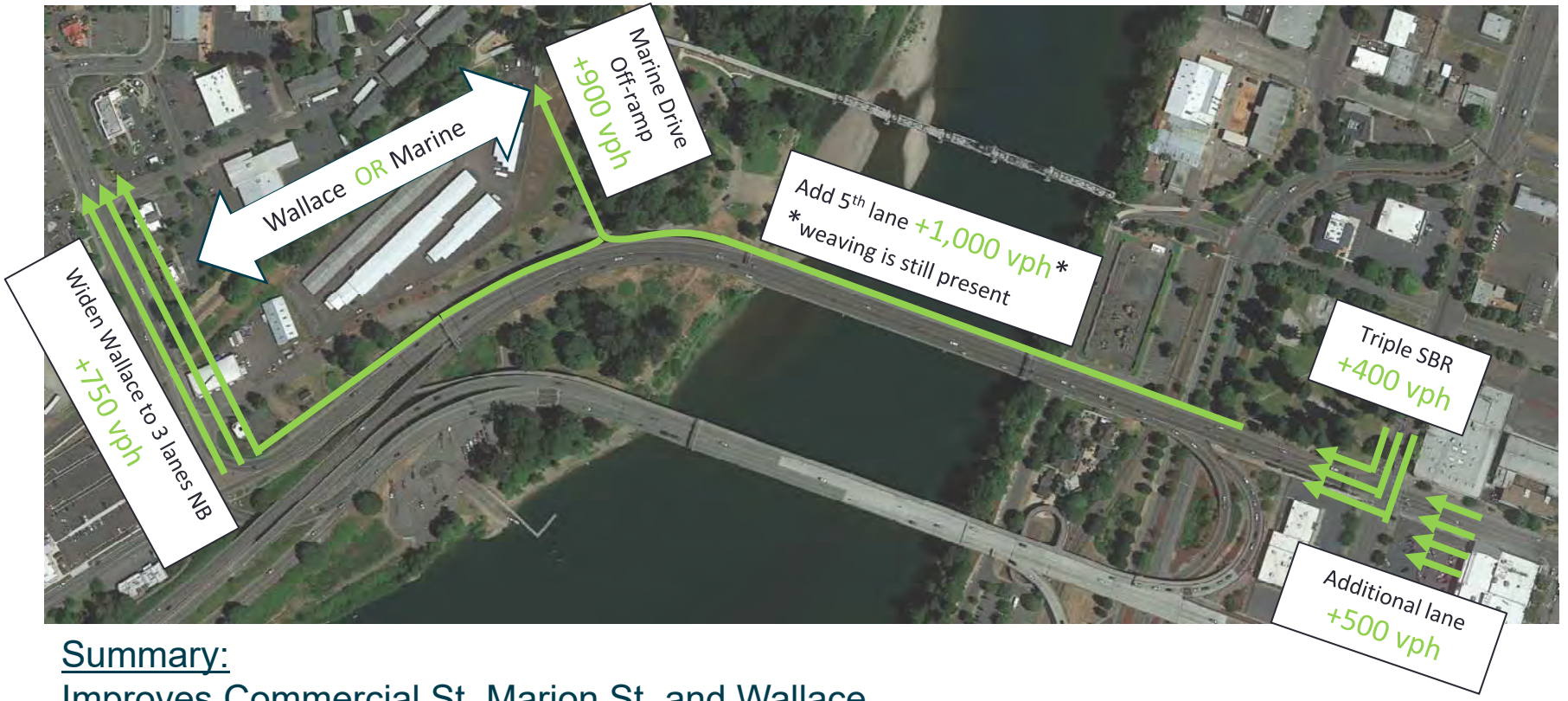


Summary:

Total #2b (with Wallace Rd): $60 million - $70 million

Solution Packages – Marion St Bridge

Package #4a (Marine Drive) and #4b (Wallace Rd)



Summary:

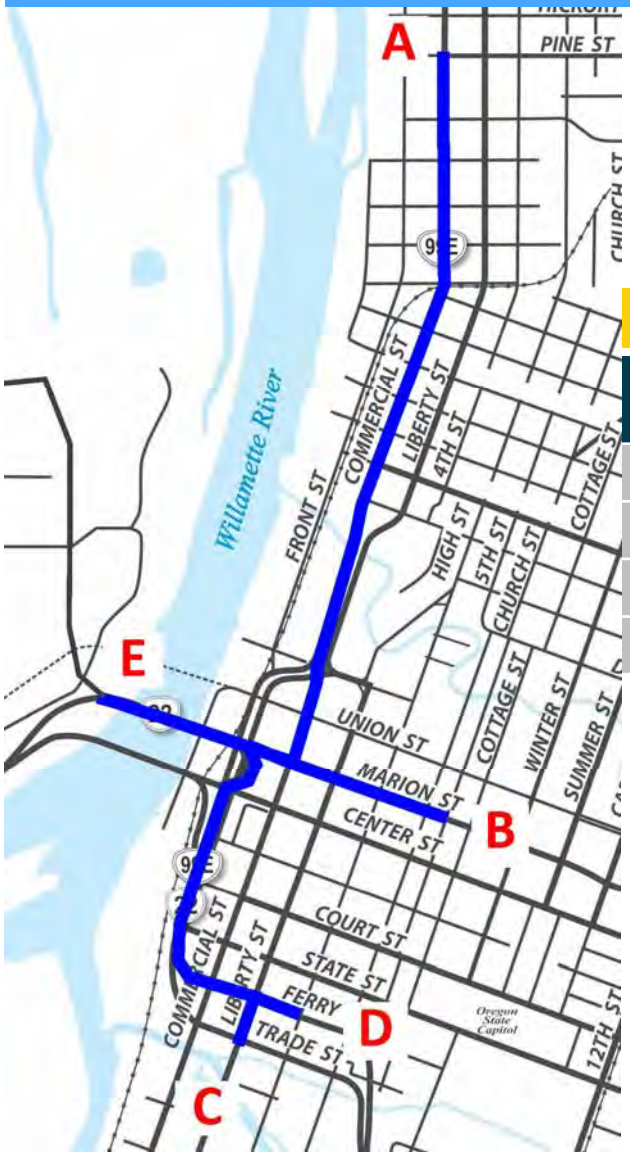
Improves Commercial St, Marion St, and Wallace

Weaving on bridge still occurs and with five lanes, **previously not endorsed by ODOT**

No improvements for Front St

Maximum capacity of package = 900 vph

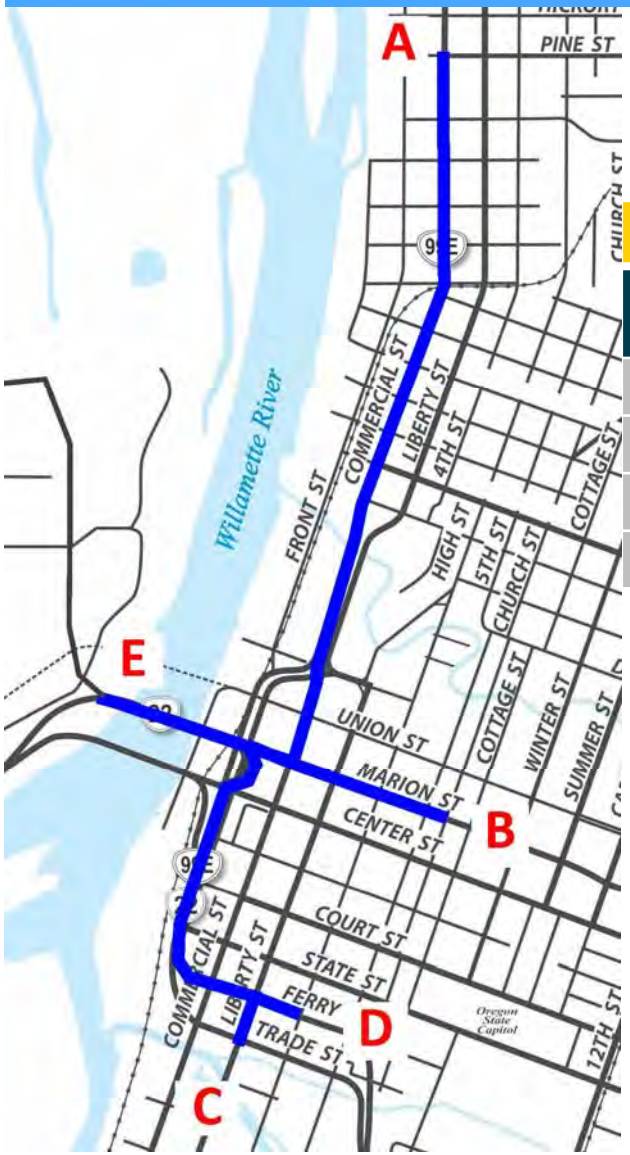
Solution Package – Marion Bridge #4a (Marine Dr)



Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**9 mins**	**11 mins**
B	E	9 mins	**5 mins**	**13 mins**
C	E	8 mins	**8 mins**	**10 mins**
D	E	8 mins	**8 mins**	**10 mins**

Solution Package – Marion Bridge #4b (Wallace Rd)



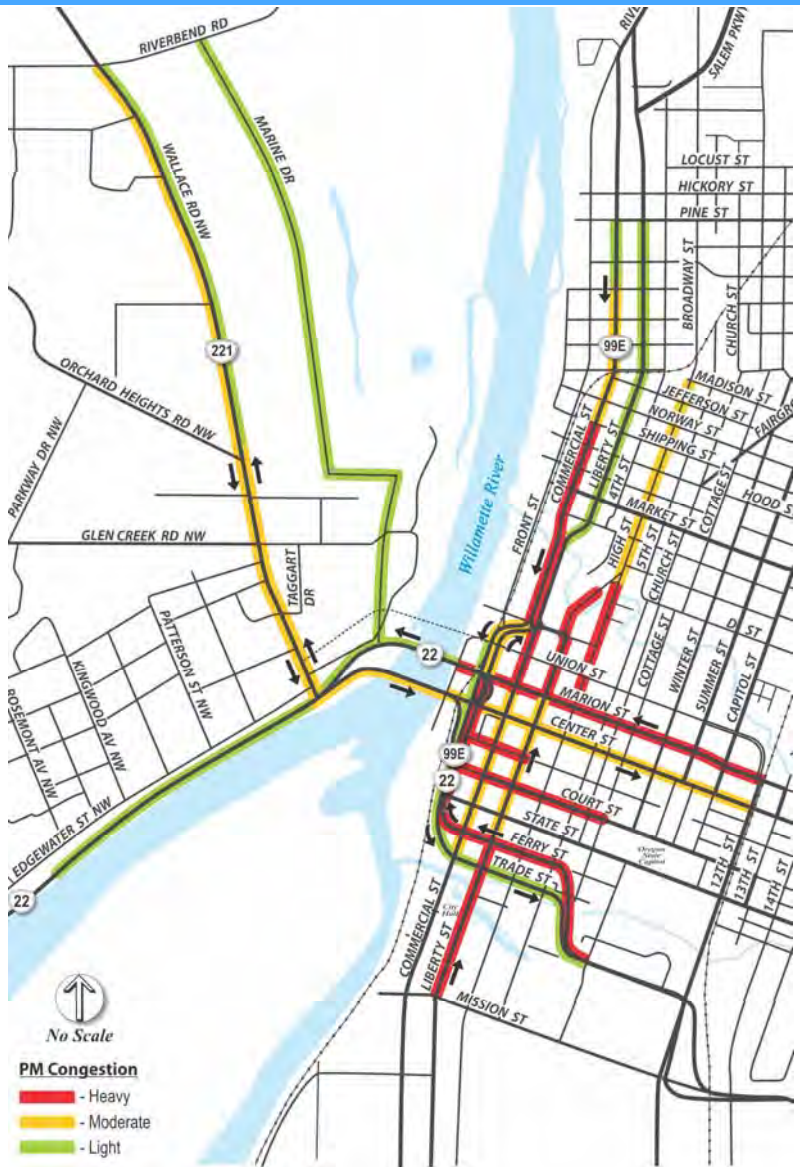
Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	**PM Peak (Build 2028)**
A	E	12 mins	**8 mins**	**10 mins**
B	E	9 mins	**4 mins**	**12 mins**
C	E	8 mins	**8 mins**	**10 mins**
D	E	8 mins	**8 mins**	**10 mins**

Solution Package – Marion Bridge #4

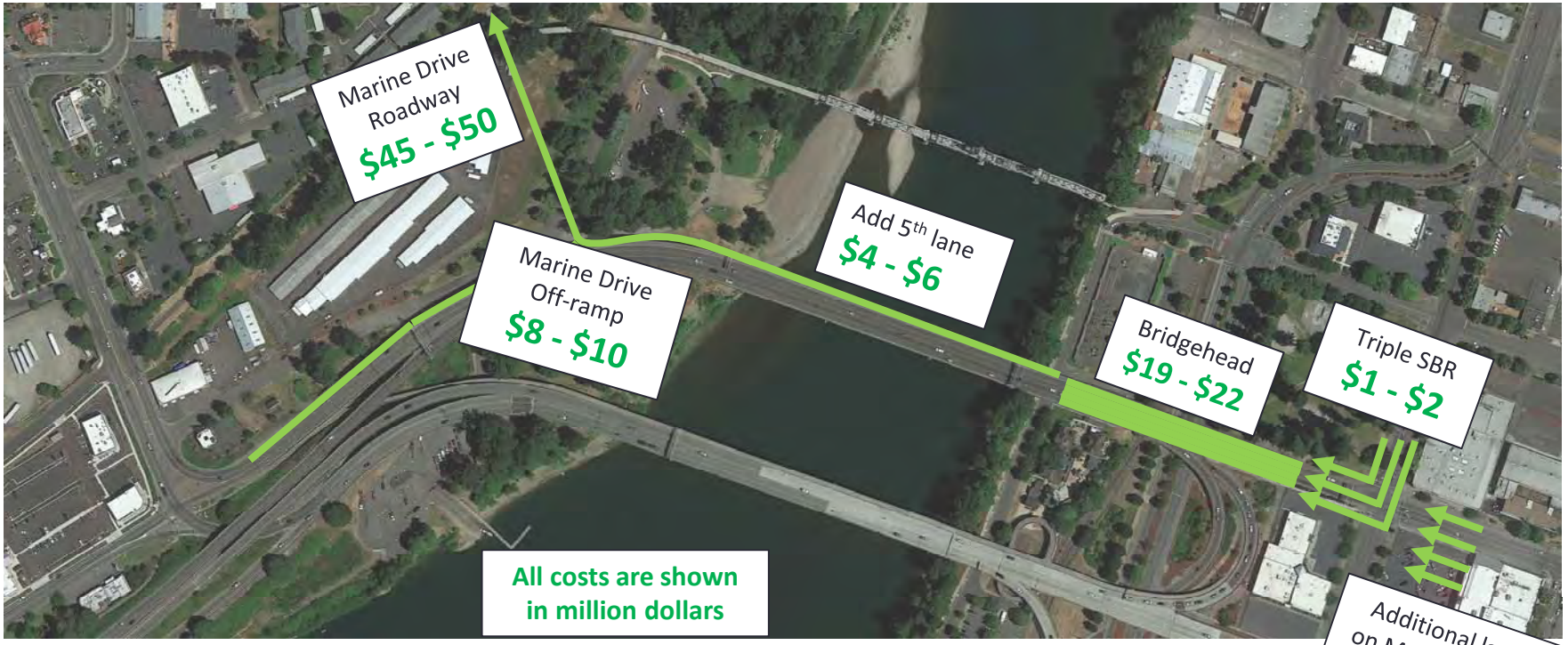
Queuing – 2028 PM Peak

- Commercial St – reduced queuing and congestion
- Marion St – short-term reduced queuing and congestion
- No improvement to Front St NB, Ferry St, or Liberty St



Solution Package – Marion Bridge #4a

Cost Estimate (with Marine Dr)



Summary:

Total #4a (with Marine Dr): $80 million - $95 million

Solution Package – Marion Bridge #4b

Cost Estimate (with Wallace Rd)

Summary:

Total #4b (with Wallace Rd): $55 million - $65 million

Solution Package Review Table

	Center Bridge #1	Marion Bridge #1a (Marine)	Marion Bridge #1b (Wallace)	Marion Bridge #2a (Marine)	Marion Bridge #2b (Wallace)	Marion Bridge #4a (Marine)	Marion Bridge #4b (Wallace)
Travel Times	**2018:** Improved from existing conditions **2028:** At or just better than existing conditions	**2018:** Worsened from existing conditions except Marion St **2028:** Worsened further	**2018:** Slight improvement to Marion Bridge #1a **2028:** Slight improvement to Marion Bridge #1a	**2018:** Worsened from existing conditions **2028:** Worsened further	**2018:** Slight improvement to Marion Bridge #2a **2028:** Slight improvement to Marion Bridge #2a	**2018:** At or better than existing conditions **2028:** At or just worse than existing conditions	**2018:** Slight improvement to Marion Bridge #4a **2028:** Slight improvement to Marion Bridge #4a
Queuing	**2028:** Reduced queuing on Wallace Rd SB and Front St	**2028:** Additional queuing on Liberty St NB, Trade St, Commercial St, Front St NB, and Wallace Rd NB	**2028:** Similar to Marion Bridge #1a	**2028:** Additional queuing on Liberty St NB, Trade St, Commercial St, Front St NB, and Wallace Rd NB	**2028:** Similar to Marion Bridge #2a	**2028:** Reduced queuing on Commercial St and Marion St	**2028:** Similar to Marion Bridge #4a
Cost Estimate	$100 - $115 million	$80 - $95 million	$55 - $65 million	$85 - $100 million	$60 - $70 million	$80 - $95 million	$55 - $65 million

Key Findings

- Center Bridge Solution Package
  - Center Bridge Package #1 was best option and had no fatal flaws.
- Marion Bridge Solution Package Selection
  - Marion Bridge Package #4 has similar or reduced travel times and queuing in short-term and mid-term.
  - Marion Bridge Packages #1 and #2 do not satisfy the project goal to relieve congestion in the study area.
- Wallace Road vs. Marine Drive
  - Building Marine Dr only provides increased capacity to Marion Bridge, widening Wallace Rd on both sides provides capacity for both bridges.
  - For all Marion Bridge Solution Packages, better travel times with Wallace Rd than Marine Dr because there is less weaving required.
  - Marine Dr requires environmental and park impacts.

Cost Estimate for Solution Package Combinations

Solution Package Combinations	Total Cost Estimate Range (million)
Marion Bridge #1a (Marine Dr) & Center Bridge #1	**$180 - $210**
Marion Bridge #1b (Wallace Rd) & Center Bridge #1	**$155 - $180**
Marion Bridge #2a (Marine Dr) & Center Bridge #1	**$185 - $215**
Marion Bridge #2b (Wallace Rd) & Center Bridge #1	**$160 - $185**
Marion Bridge #4a (Marine Dr) & Center Bridge #1	**$180 - $210**
Marion Bridge #4b (Wallace Rd) & Center Bridge #1	**$155 - $180**

I. TASK FORCE MEETING #5

AGENDA FOR AUGUST 3, 2018

MATERIAL FOR AUGUST 3, 2018

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

CITY OF Salem AT YOUR SERVICE

August 3, 2018

MEETING GOALS

1. Agenda Review and Meeting #4 Recap ▶ **7:00**

2. Review Project Goal, Data, and Solution Ideas ▶ **7:05**

3. Recommendations and Reporting ▶ **7:30**

From the Council-Adopted Work Scope:

a. Changes to adopted policies, practices, or projects?
b. Recommended projects: Short, intermediate, and long term?
c. Funding strategies?
d. Areas for further research?

4. Project Conclusions and Key Points ▶ **8:20**

Review and approve conclusions

5. Next Steps ▶ **8:50**

DATE	MEETING TOPIC
Feb. 23	**1. Project Introduction** a. Task Force goals and process b. Key transportation issues c. Current policies and constraints
April 20	**2. Future Conditions, Transportation Ideas, Evaluation Criteria**
May 18	**3. Transportation Idea Results:** Tier 1 Screening (choose 3)
July 20	**4. Tier 2 Screening:** Select Solution Package for each bridge to advance for further analysis
Aug. 3	**5. Draft Recommendations**
Sept. 14	**6. Optional Meeting**

CITY OF SALEM PUBLIC WORKS DEPARTMENT
555 Liberty St. SE · Suite 325 · Salem, OR 97301-3513 · Email: *publicworks@cityofsalem.net* · Tel: 503-588-6211 · cityofsalem.net

CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Task Force Meeting #5, August 3, 2018

DKS

Prepared by DKS Associates

CITY OF Salem AT YOUR SERVICE

Agenda

1. Agenda Review and Meeting #4 Recap
2. Review Project Goal, Data, and Project Ideas
3. Recommendations and Reporting
    a) Recommended Projects: short, medium, and long-term
    b) Changes to adopted policies, practices, and projects
    c) Funding Strategies
    d) Areas for further research
4. Project Conclusions and Key Points
5. Next Steps

Project Goal

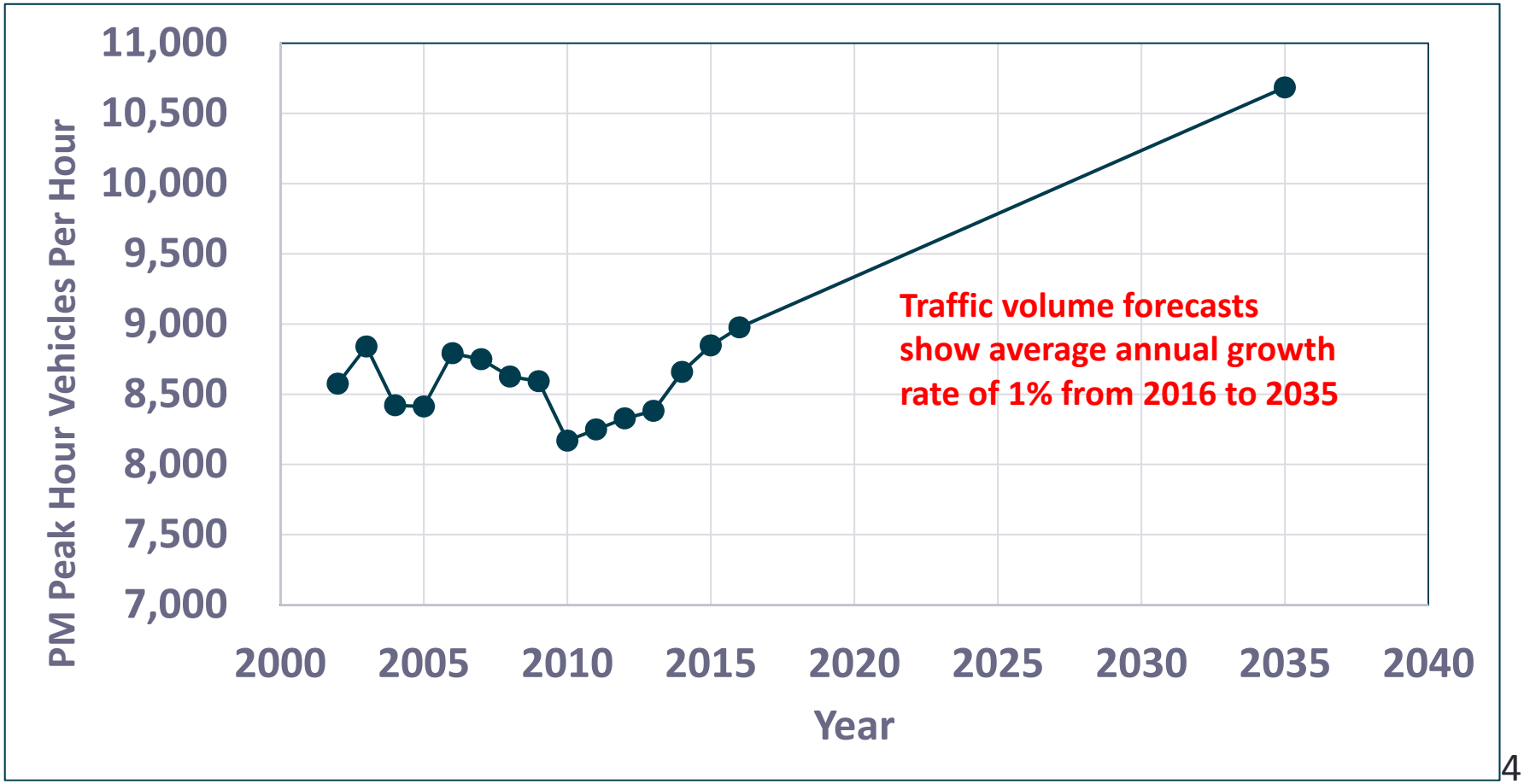
Identify options for reducing traffic congestion and improving vehicular mobility around the Marion and Center Street bridges

- Develop ideas to reduce traffic congestion and improve vehicular mobility in:
  - Short term (within 5 years)
  - Medium term (within 10 years)
  - Long term (longer than 10 years)

- Develop a list of recommendation(s) that includes the following:
  - Changes to adopted policies, practices, and projects
  - Projects that improve traffic congestion and vehicular mobility
  - A funding strategy
  - A prioritized listing of areas recommended for further research

Projected Traffic Growth – PM Peak Hour

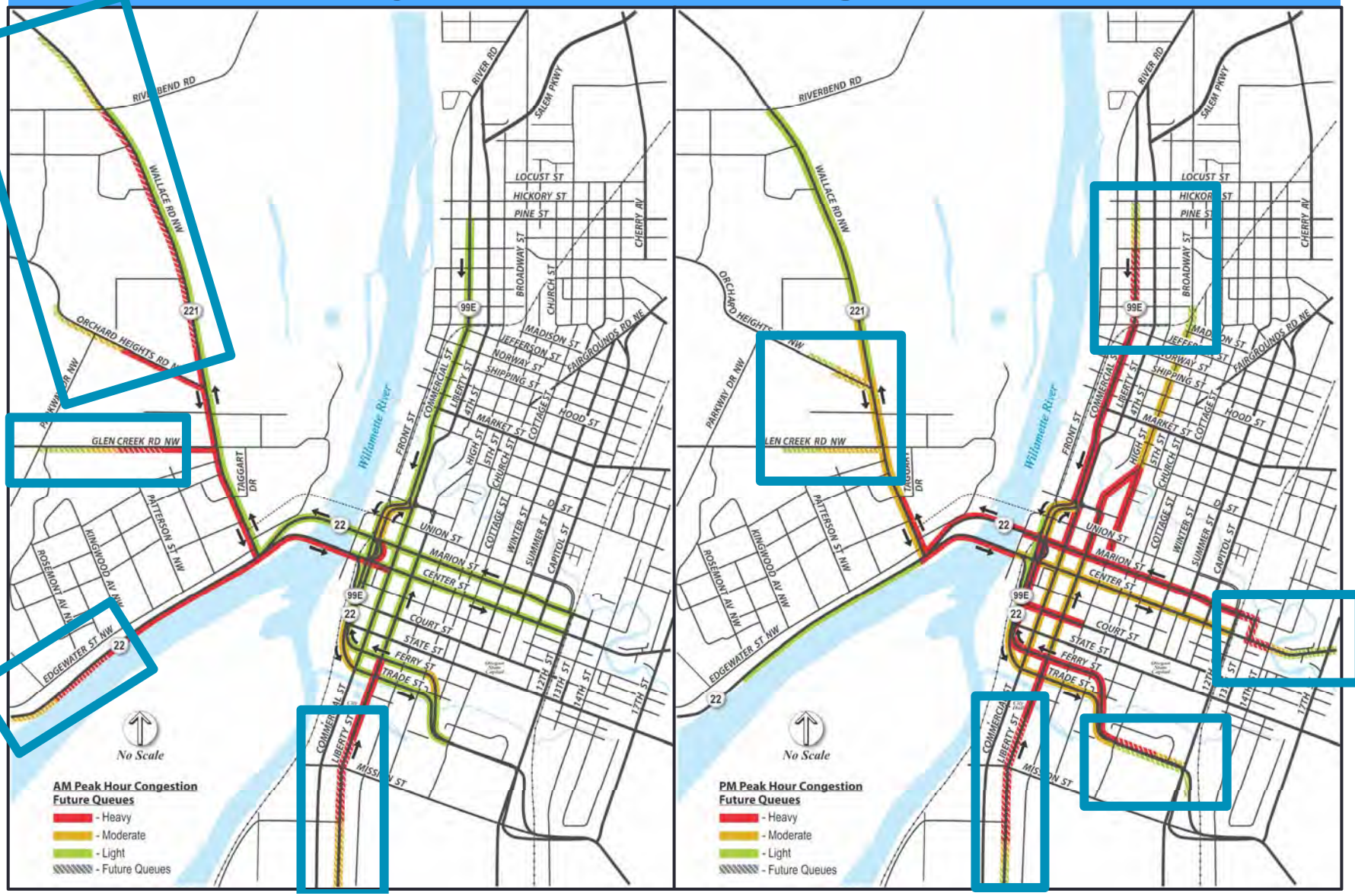
Using data from ODOT Traffic Recorders, traffic across both Salem Bridges is shown below from 2002 to 2016. The 2035 PM peak hour vehicular volume shown is based on data from the PSU Population Research Center forecasts.



CONGESTION RELIEF TASK FORCE

A Technical Review of Transportation Infrastructure Options

Study Area Queuing in 2035

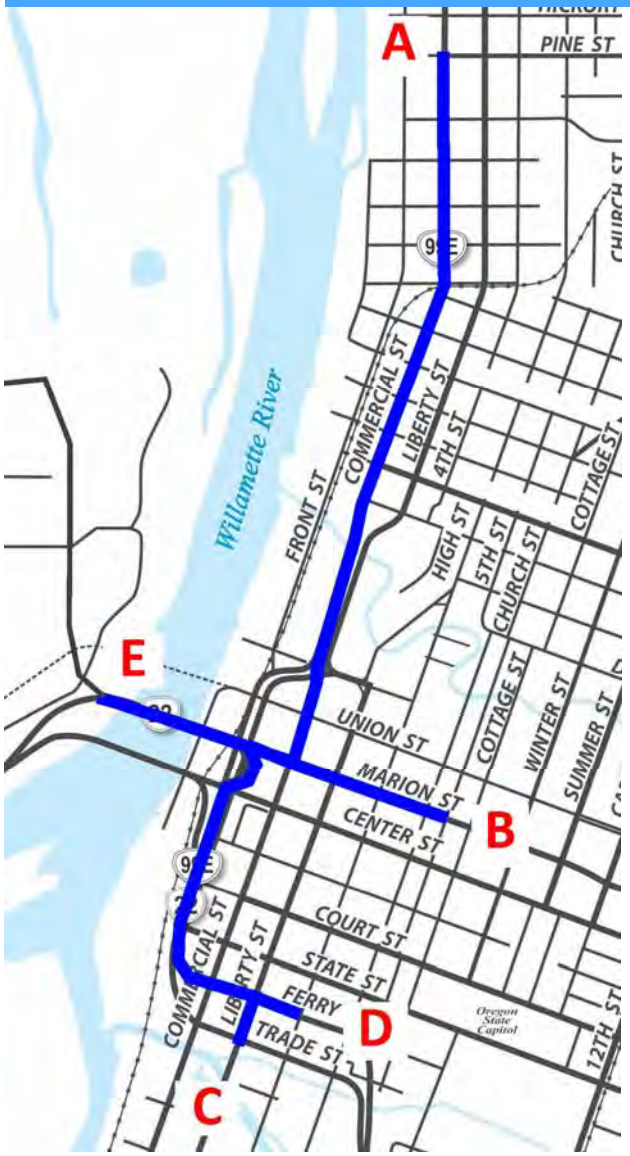


Solution Package – Center Bridge #1

AM Travel Times (mins)

Start	End	AM Peak (Existing)	**AM Peak (Build 2018)**	AM Peak (No Build 2028)	**AM Peak (Build 2028)**
A	E	11 mins	**6 mins**	15 mins	**10 mins**
B	E	10 mins	**5 mins**	14 mins	**9 mins**
C	E	7 mins	**4 mins**	10 mins	**7 mins**
D	E	5 mins	**3 mins**	7 mins	**5 mins**

Solution Package – Marion Bridge #4



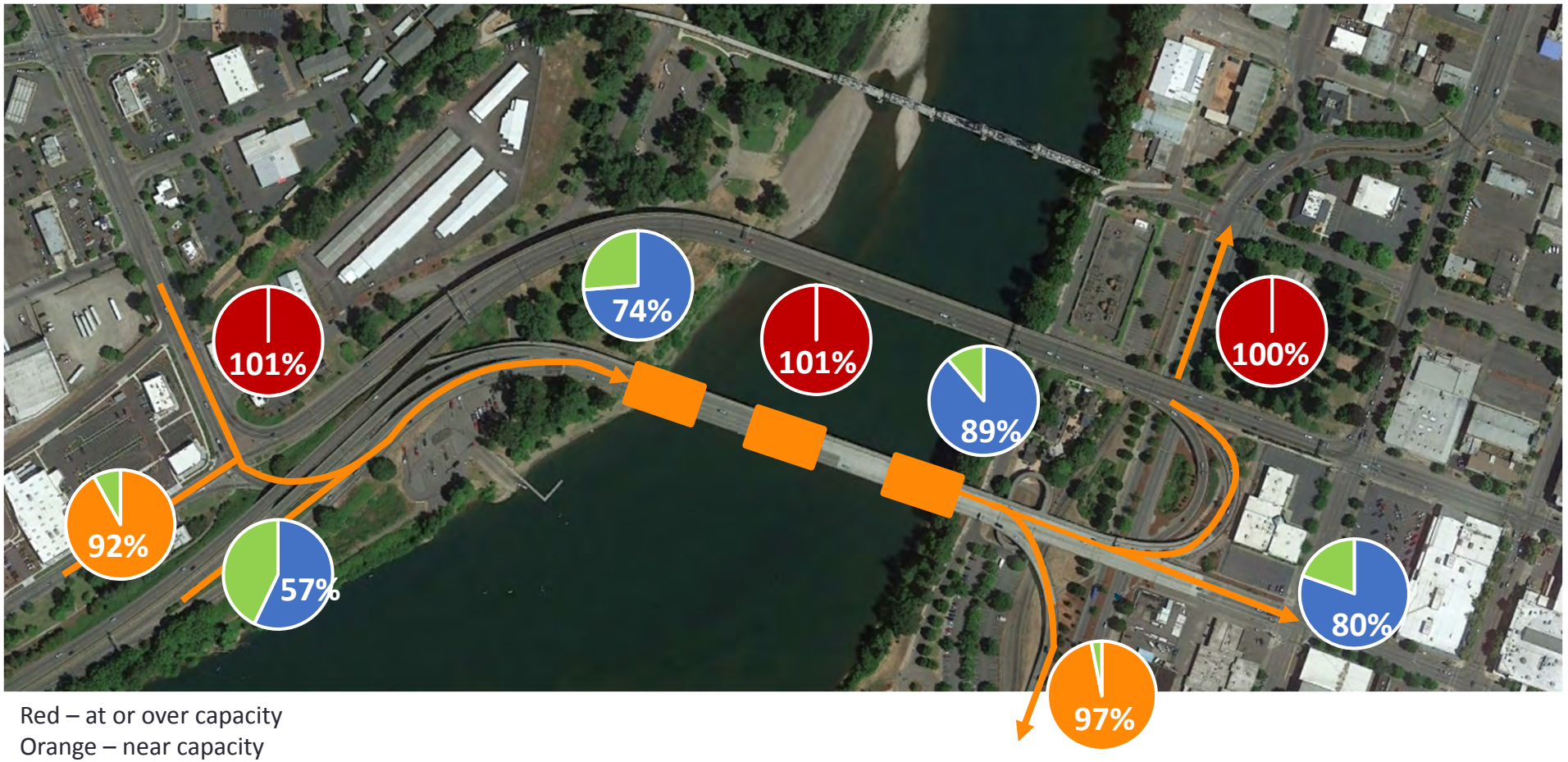
PM Travel Times (mins)

Start	End	PM Peak (Existing)	**PM Peak (Build 2018)**	PM Peak (No Build 2028)	**PM Peak (Build 2028)**
A	E	12 mins	**8 mins**	15 mins	**10 mins**
B	E	9 mins	**4 mins**	14 mins	**12 mins**
C	E	8 mins	**8 mins**	10 mins	**10 mins**
D	E	8 mins	**8 mins**	10 mins	**10 mins**

*Travel times provided for Wallace Road option (#4b)

Bridge and Bridgehead Capacity Summary

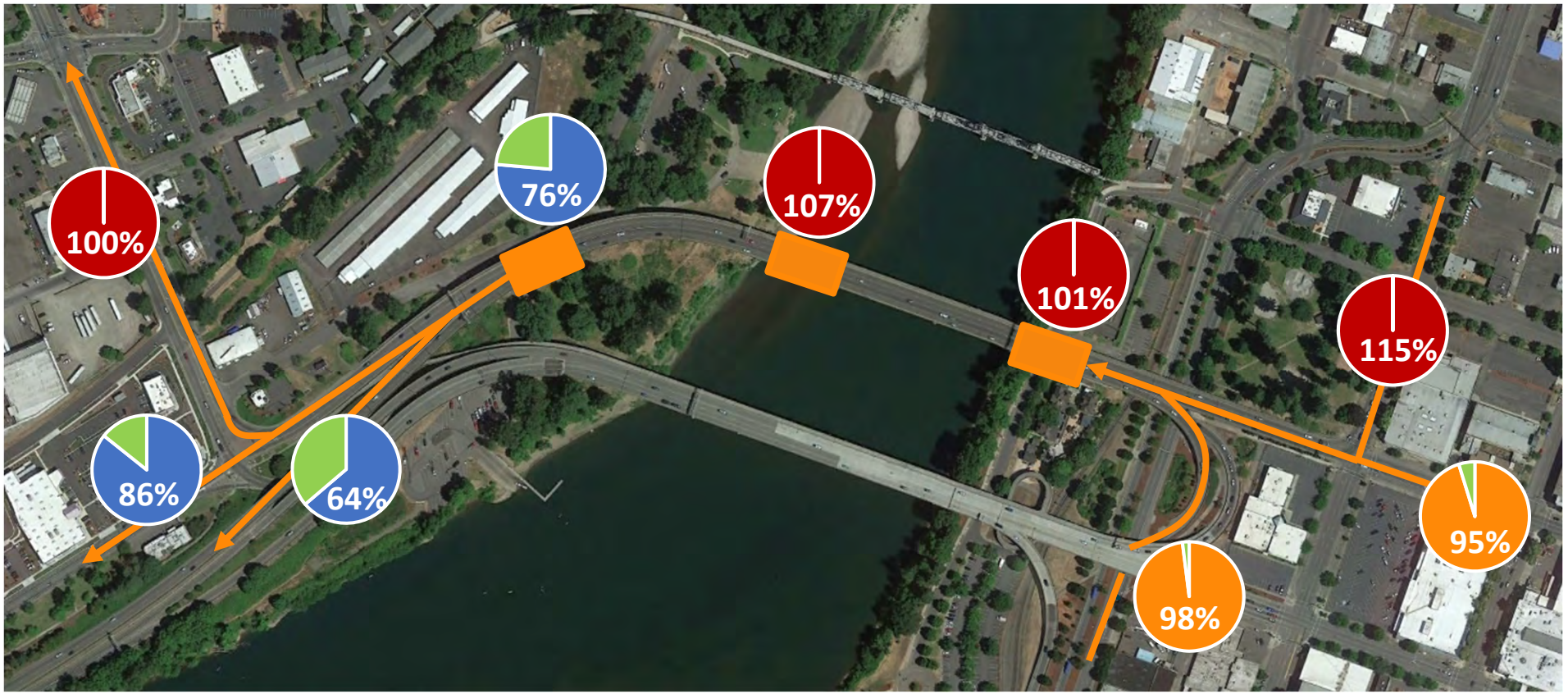
Center Street Bridge – AM Peak
Percentages of Capacity Used



Red – at or over capacity
Orange – near capacity
Blue – below capacity

Bridge and Bridgehead Capacity Summary

Marion Street Bridge – PM Peak
Percentages of Capacity Used



Red – at or over capacity
Orange – near capacity
Blue – below capacity

City & State Mobility Standards

- Level of Service (LOS): evaluated based upon average vehicle delay experienced by vehicles entering an intersection
- Volume-to-capacity ratio (v/c): A lower ratio indicates smooth operations and minimal delays. As the ratio approaches 0.90, congestion increases and performance is reduced. At 1.0 the capacity is fully utilized.

LOS	Delay (secs.)
A	< 10
B	10 – 20
C	20 – 35
D	35 – 55
E	55 – 80
F	>80

ODOT Roadway	Mobility Standard
Bridges/ Hwy 22	(v/c < 0.85)
Commercial/ Liberty	(v/c < 0.95)
Wallace Road	(v/c < 0.95)

City of Salem Standards

Traffic Control Device	Maximum Operational Standard
Signalized Intersection	LOS E Control Delay < 80 Seconds and/or v/c < 0.900
Two-way or All-Way Stop Control	LOS E Total Delay < 50 seconds

Table 6-32. Level of Service Standards for Various Traffic Control Devices

AM Intersection Operations in Study Area

Figure shows intersection operations analysis and queuing in AM peak. As shown, many intersections fail to meet the City or State mobility standards.

- - At or near standards
- - Fails to meet standards

PM Intersection Operations in Study Area

Figure shows intersection operations analysis and queuing in PM peak. As shown, many intersections fail to meet the City or State mobility standards.

- - At or near standards
- - Fails to meet standards

Project Ideas

These following project ideas came from many sources:

- Previous Studies
- Public Survey (1,300 participants)
- Task Force Committee
- Consultant Team

Project ideas:

- Were included in the Solution Packages or
- Provided spot benefits and are discussed later in agenda or
- Did not provide capacity benefits (next slide)

Project Ideas Not Advanced

	Ideas
1	Add lanes to Commercial Street/Liberty Street
2	Construct Union St bikeway (already funded)
3	Widen to two SB lanes on Front Street (from Commercial St to Court St)
4	Remove the traffic signal at Edgewater St/Wallace Rd
5	Roundabout at Edgewater St/Wallace Rd
6	Close Edgewater St at Wallace/Marion Street Bridge off-ramp; only accessible via Rosemont Ave
7	Install traffic signal at Edgewater St/Patterson St
8	Widen WB Rosemont exit on Highway 22
9	Remove the pedestrian crossing at Front St/Court St

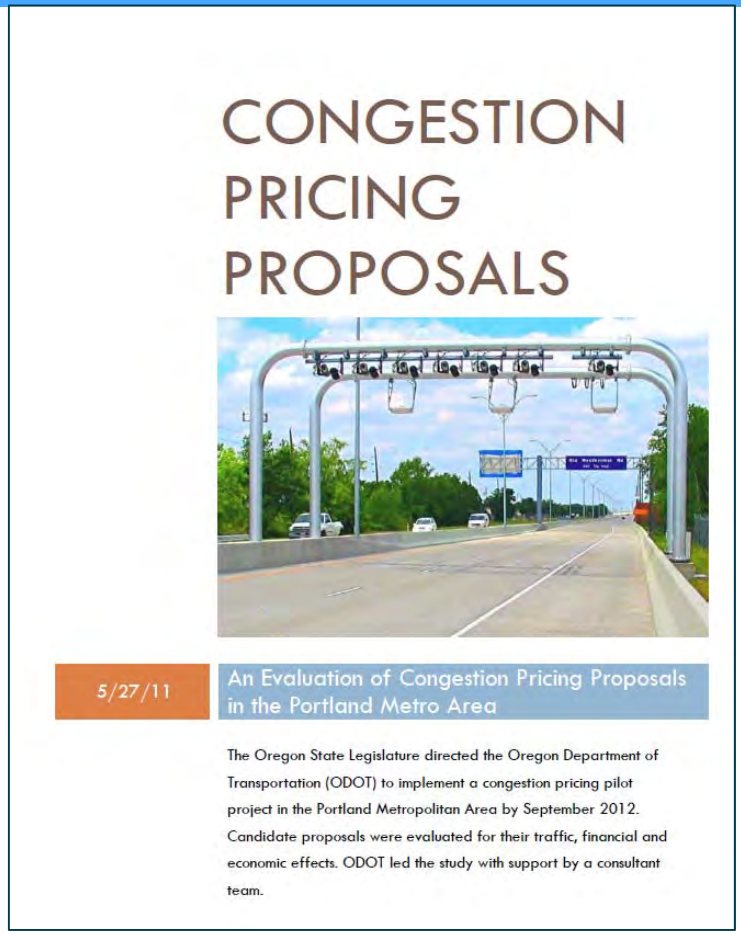
Policies, Practices, and Projects

Policies for Consideration

- Congestion Pricing – charging users for roadway or bridge trips during the peak periods to decrease demand and fund transportation improvements. Congestion Pricing project for Portland Metro Area pictured right.
- Parking Pricing – implement or increase parking costs to reduce peak hour vehicle demand and increase alternative modes
- Travel Time Standards - Identify acceptable travel time standards/levels of congestion for road users

Adopted Projects

- Central Salem Mobility Study – adopted projects that reduce vehicle capacity



Wallace Road/Taggart Drive Intersection Improvements

Improvements include widening Taggart Dr approaches to have dual, exclusive left turn lanes and exclusive right turn lanes.

Provides approximately 7% more capacity on Wallace Road for through traffic in both the AM and PM peak hour.

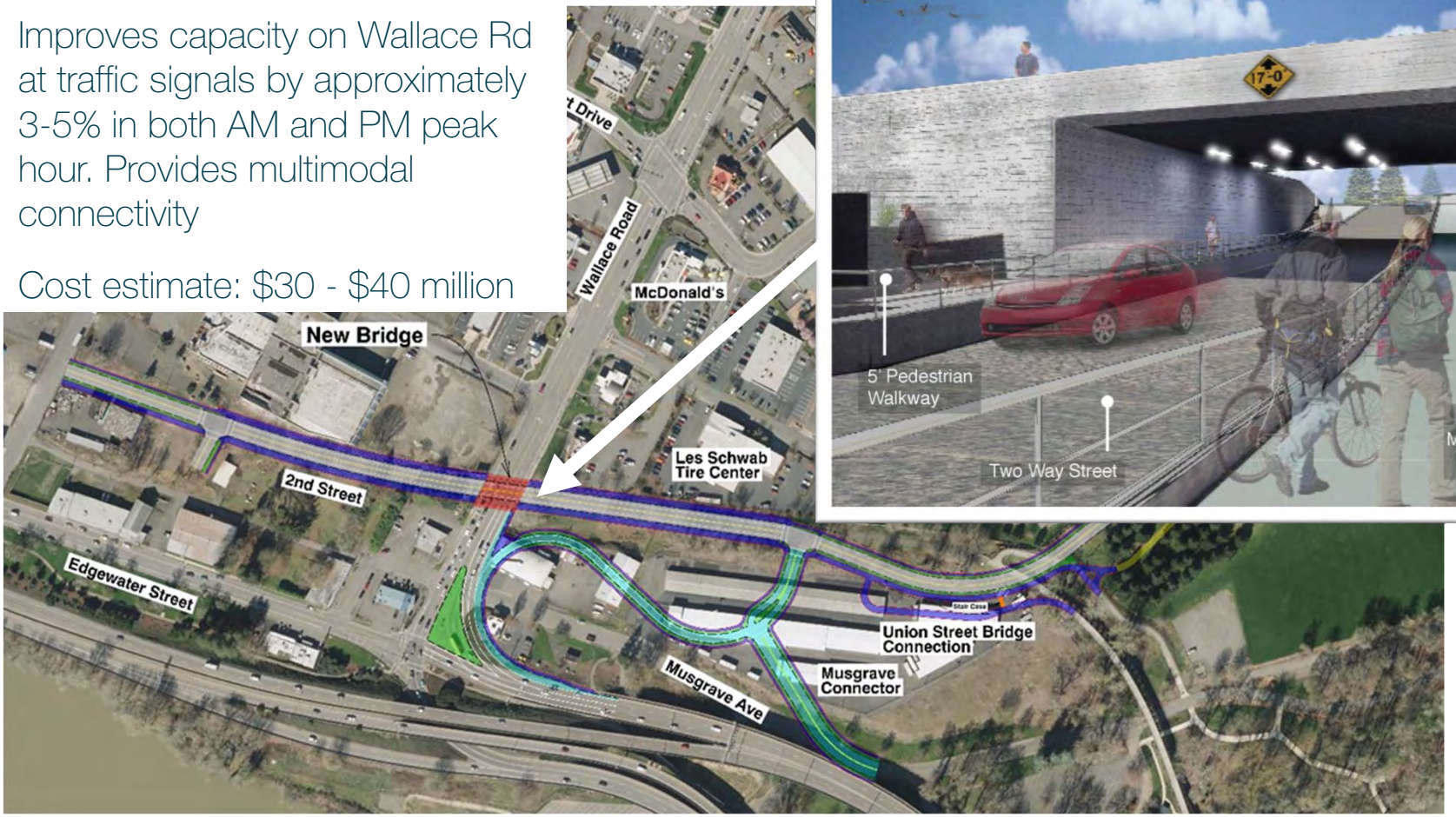
Cost estimate: $10 million

2nd Street Undercrossing

Connect 2nd Street under Wallace Road to the proposed Marine Drive roadway, build an additional off-ramp lane from Marion Street bridge to 2nd St/Marine Dr

Improves capacity on Wallace Rd at traffic signals by approximately 3-5% in both AM and PM peak hour. Provides multimodal connectivity

Cost estimate: $30 - $40 million



Grade-separated Pedestrian Crossing

Remove pedestrian crossings of Front St.

Reduces delays for traffic on Front St.

Remove Front Street pedestrian crossings at State St and Court St

Build a grade-separated pedestrian crossing, reducing delay for traffic on Front Street.

Must get buy-off from ODOT to remove crossings.

Reduces access to Riverfront Park.

Negligible change in capacity due to bottleneck at Front/Trade/Commercial

ITS Driver Information Signage

Does not increase capacity but helps provide real time information to commuters.

Cost estimate: $500,000 - $1,000,000 for each variable message sign (VMS)

Potential Short/Medium-term Projects

Cost Estimate: $0 - $5 million per project

1. Improve guide signage leading up to and on the bridges
2. Increase pedestrian delays at signalized intersections during peak periods
3. Open Musgrave Avenue through Wallace Marine Park
4. Variable speed limit signage on Hwy 22
5. Install travel time signage in study area
6. Expand bike/ped connections to Union Street Bridge
7. Parking Management
8. Invest in Downtown Circulator
9. Park and Walk/Bike/Shuttle in Wallace Marine Park
10. Turn restrictions on Wallace Road - Install center lane barrier and/or remove turns from Wallace Rd onto Taggart Dr

Potential Medium/Long-term Projects

Cost Estimate: $5 - $50 million per project

1. Add a grade-separated pedestrian crossing of Front Street between downtown and Riverfront Park and remove the existing pedestrian crossings of Front St
2. Extend two SB lanes on High St past Union Street (remove parking) and make SBRT free flow at Marion Street
3. Add grade-separated pedestrian crossing near Marion Street/High Street, remove existing pedestrian crossing at intersection
4. 2nd Street Undercrossing
5. Taggart Dr/Wallace Rd intersection improvements
6. Connect Murlark Avenue to Glen Creek Road
7. Add through and right turn lanes to Wallace Road from Hwy 22 to Brush College Rd
8. Widen Front Street (north of Division) to minor arterial standards

Potential Long-term Projects

1. Center St bridge Solution Package #1 (Cost estimate: $100 - $137 million)
2. Marion St bridge Solution Package #4a (Cost estimate: $80 - $95 million)
3. Marion St bridge Solution Package #4b (Cost estimate: $55 - $65 million)

Funding Strategies

Gas Tax – sales tax imposed on sale of gasoline to fund transportation or road projects. Requires voter approval

Bonds – issued by the City to fund capital projects such as building highways or road improvement projects. Requires voter approval

J. TASK FORCE MEETING #6

AGENDA FOR SEPTEMBER 14, 2018

MATERIAL FOR SEPTEMBER 14, 2018

CITY OF Salem AT YOUR SERVICE

Public Works Department

Congestion Relief Task Force

Si necesita ayuda para comprender esta información, por favor llame 503-588-6211. Disability-related modification or accommodation, including auxiliary aids or services, in order to participate in this meeting or event, are available upon request. Sign language and interpreters for languages other than English are also available on request. To request such an accommodation or interpretation, contact Judy Postier at 503-588-6008 or jpostier@cityofsalem.net at least two business days before meeting; or TTD/TTY telephone 503-588-6439, is also available 24/7.

MEMBERS

Mayor Bennett
Councilor Chris Hoy
Councilor Cara Kaser
Councilor Jim Lewis

CITY STAFF

Julie Warncke
Peter Fernandez
Kevin Hottmann
Robert Chandler

OTHER

Scott Mansur, DKS
Julie Fischer, Cogito
Terry Cole, ODOT
Mike Jaffe, MWVCOG

MEETING AGENDA

Friday, September 14, 2018
7:00-9:00 a.m.
Public Works Department
555 Liberty Street SE, Room 325

1.	**Agenda Review and Meeting #5 Recap**	**7:00**
2.	**Final Project Documents**	**7:05**

Review and Approve:
Project Handout
Project Conclusions & Key Points
Recommendations Table

3.	**Next Steps**	**8:50**

The problem today

With traffic levels hampering downtown circulation, and long delays in west Salem, policy makers are evaluating potential transportation infrastructure.

Commercial St. at Division St. and Front St.

Wallace Rd. at Glen Creek

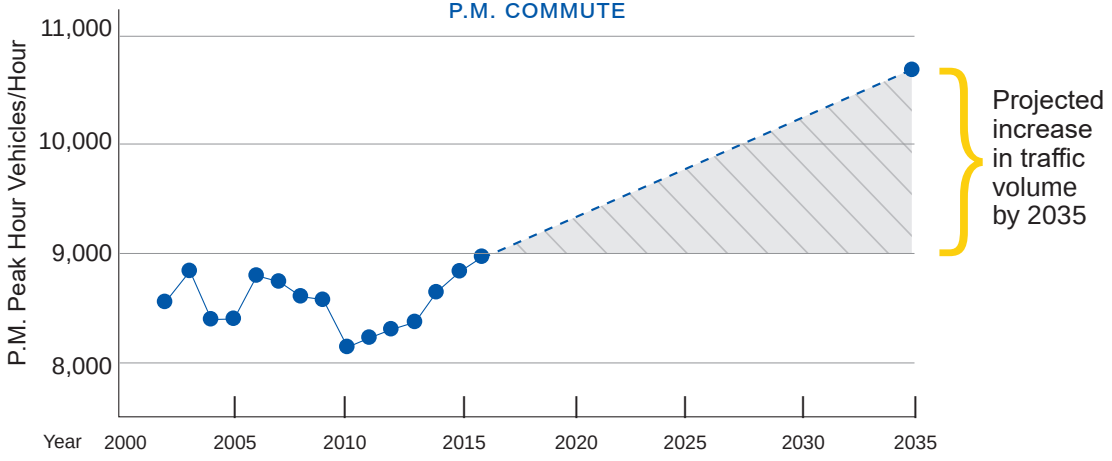
Court St. at Front St.

As the population of Salem increases, traffic and congestion will increase.

+20%
GROWTH IN SALEM'S POPULATION
predicted, 2018 to 2038

+1% per year
AVERAGE GROWTH IN TRAFFIC VOLUME
predicted, 2016 to 2035**

Salem Bridges Traffic Volume
P.M. COMMUTE



*2002-2016 data based on ODOT Traffic Recorders Data

**2035 PM peak hour volume based on data from the PSU Population Research Center forecasts

Composed of the Mayor and three City Councilors, the Salem Congestion Relief Task Force investigated potential ways for the City to relieve congestion and advise the City on policies and actions to improve traffic flow.

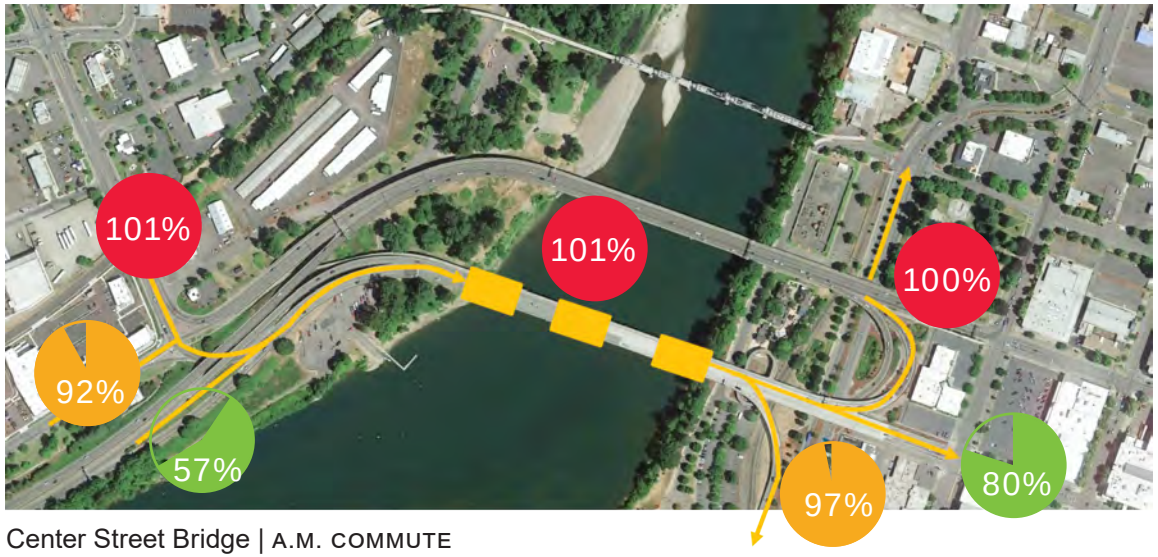
What causes morning and evening congestion?

Traffic jams in the morning and evening are caused by bottlenecks at the Center Street and Marion Street bridges.

During morning and evening commutes, traffic on the bridges nears or exceeds capacity in many areas.

MORNING RUSH HOUR TRAFFIC CONGESTION

Measures Of Road Capacity Used During Morning Peak Traffic Hours



Center Street Bridge | A.M. COMMUTE

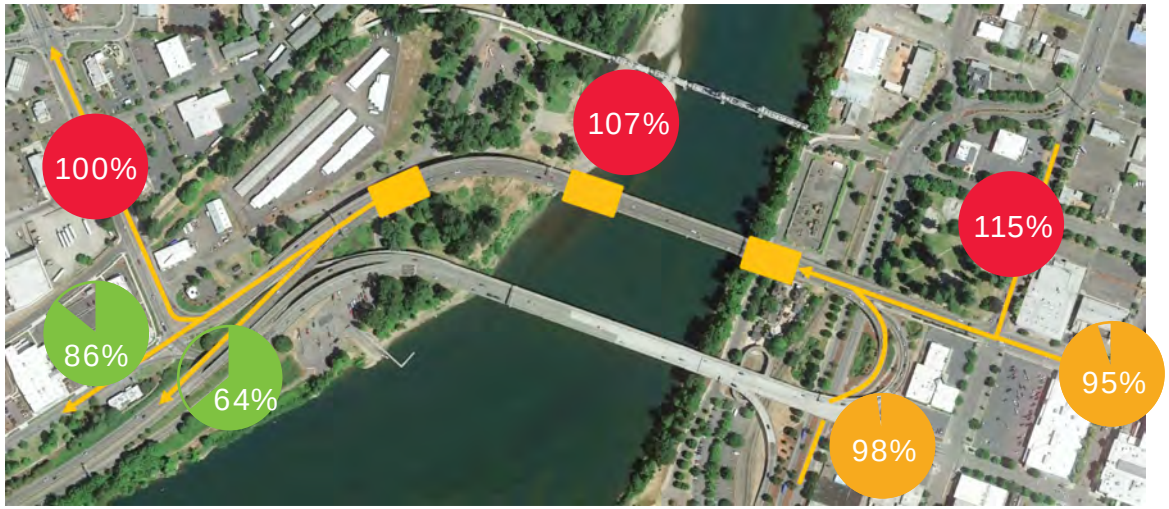
- At or over capacity
- Near capacity
- Below capacity

Morning Intersection Operations

- Fails to meet standards
- At or near standards
- Vehicle queuing (back-ups) during peak traffic hours

EVENING RUSH HOUR TRAFFIC CONGESTION

Measures Of Road Capacity Used During Evening Peak Traffic Hours



Marion Street Bridge | P.M. COMMUTE

- At or over capacity
- Near capacity
- Below capacity

Evening Intersection Operations

- Fails to meet standards
- At or near standards
- Vehicle queuing (back-ups) during peak traffic hours

Salem Bridges: Key Connectors

Regional travelers, freight, and residents depend heavily on Salem bridges for daily travel, due to lack of alternative routes.

MARION STREET BRIDGE

CENTER STREET BRIDGE

The nearest alternative crossings are far from Salem.

WHEATLAND FERRY
13 miles from downtown Salem
Estimated drive: 21 minutes one way

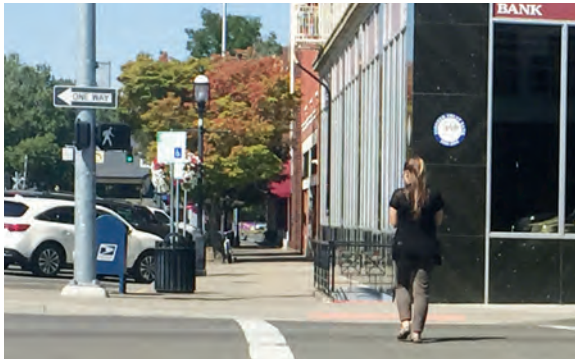
INDEPENDENCE BRIDGE
12 miles from downtown Salem
Estimated drive: 17 minutes one way

Photo credits: Marion St. and Center St. Bridges :M.O. Stevens - Own work, CC BY-SA 3.0, commons.wikimedia.org/w/index.php?curid=4706428 & commons.wikimedia.org/w/index.php?curid=4707249 Wheatland Ferry: Andrew Parodi at the English Wikipedia, CC BY-SA 3.0, commons.wikimedia.org/w/index.php?curid=9998081

Short-Term Actions

The Task Force recommends the following actions.

Guide signage
Improve guide signage leading up to and on the bridges



Increase pedestrian delays
Increase pedestrian delays at signalized intersections during peak periods

Travel time signage
Install travel time signage in the study area

Musgrave Avenue connector
Remove the barrier on Musgrave Avenue east of Wallace Road to allow traffic to access Wallace Marine Park

(Box available if Actions added)

(Box available if Actions added)

Longer-Term Options

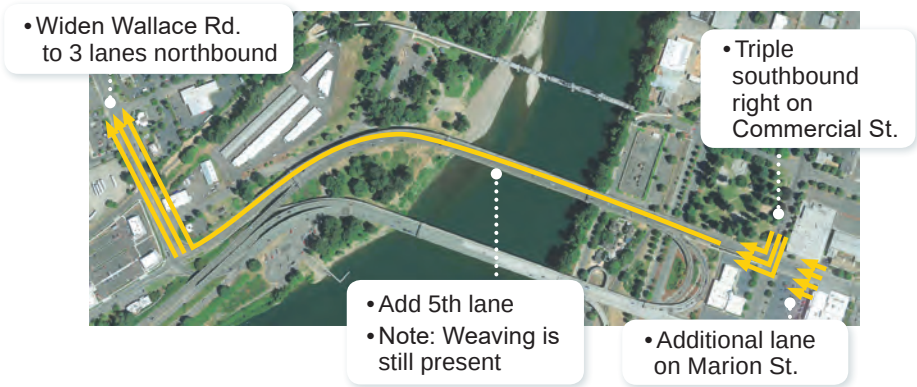
The Task Force evaluated several packages of potential improvements. The most promising packages are described below. The Task Force did not reach consensus and therefore are not recommending these for further study.

Center Street Bridge Package

Summary

- Improves Wallace Rd. and Front St.
- Bottlenecks still exist at both Commercial St./Front St. intersections
- Project Cost: $100–$137 million

Marion Street Bridge Package



Summary

- Improves Commercial St., Marion St., and Wallace Rd.
- Weaving (lane-changing) on bridge still occurs, and with five lanes
- No improvements for Front St. on-ramp to bridge
- Project Cost: $55–$65 million

Considerations

- Solution packages are expensive.
- The benefits are not long-lived. Travel times initially would be reduced by as much as 50%, while some areas would not see any reduction. Travel times would return to preconstruction levels within 10 years (2028).
- Making a single improvement, rather than implementing the whole package, can help in the immediate area, but it will either move the problem to a different spot, or fail to relieve overall congestion in the area.

Project Conclusions

Increasing vehicular flows across the Marion Street and Center Street bridges during peak travel times will require an estimated $55-$65 million for the Marion Street Bridge area and $100 - $137 million for the Center Street Bridge area.

If the projects are completed, travel times in the peak hour(s) for both eastbound and westbound traffic across the bridges would be reduced by as much as 50 percent initially (some approaches to the bridge would have no travel time change); travel times would return to pre-construction levels within ten years or less after project completion.

The Task Force did not reach consensus on any long-term major capital improvements.

Key Points:

1. **The population of Salem and the region is projected to grow more than 20 percent over the next 20 years.** The majority of residential growth is expected to occur west and south of downtown.
2. **Vehicle congestion in the study area is projected to increase.** This will result in longer travel times and the duration of the morning and afternoon peak commutes on the two bridges.
3. **Congestion is directly related to vehicle flows to, from, and across the bridges.** To relieve vehicle congestion in the study area, the Task Force focused on options that would increase vehicular traffic flows across the Marion and Center Street bridges, including roads leading to and from the bridges.
4. **A congestion pricing (tolling) program could reduce vehicle congestion at peak hours.** ODOT has studied congestion pricing on I-5 and I-205 but has yet to implement it.
5. **New Transportation Demand Management (TDM) policies such as commuter reduction programs could create capacity.** Programs could include voluntary change in employment start and end times, incentives to use available ridesharing programs, and increased transit frequency during peak hours.
6. **There is no single project at a specific location that would significantly reduce congestion across the Marion Street and Center Street bridges.** To significantly reduce congestion, a set of capital projects must be packaged together. There are several lower-cost improvements that could provide benefits at specific locations or to a limited number of users. Examples include: intersection modifications; additional guide signage; enacting turn restrictions at certain times of day; providing a park and ride/walk/shuttle facility at Wallace-Marine Park; creating a circulator/trolley program, and implementing Intelligent Traffic System technologies.
7. **Improving the morning eastbound traffic flows (Center Street Bridge) costs over $100 million.** The set of capital projects that would improve eastbound traffic flows across the Center Street Bridge involves widening Wallace Road NW to three lanes southbound; widening the eastbound bridge approach structure; adding a fifth lane on the bridge; making modifications to the north and southbound off-ramps to Front Street NE and addressing downstream bottlenecks at intersections of Front/Commercial/Division streets and Front/Commercial/Trade streets. If constructed, this option is estimated to:

- Cost between $100 and $115 million if conducted in conjunction with projects to address westbound traffic (Marion Street Bridge). If not conducted in conjunction with Marion Street Bridge projects, the cost increases by approximately $19 to $22 million.
- Initially reduce peak travel times by approximately 50 percent. Travel times would return to pre-construction levels approximately ten years following project completion.

8. **Improving evening westbound traffic flows (Marion Street Bridge) costs over $55 million.** The set of capital projects that would improve westbound traffic flows across the Marion Street Bridge involves adding a third right turn lane on Commercial Street; adding an additional westbound lane on Marion Street NE by removing parking; widening the bridge approaches; adding a fifth lane on the bridge; removing the pedestrian sidewalk on the bridge and widening Wallace Road NW to three northbound lanes. If enacted, this option is estimated to:
    - Cost between $55M and $65 million.
    - Initially reduce peak travel times 30 and 50 percent for vehicular traffic originating from north and east of the Marion Street Bridge, respectively. Travel times for traffic originating from south of the bridge would remain unchanged. All travel times would return to pre-construction levels less than ten years following project completion.
9. **In addition to the capital costs of each of the project packages, there are also social, environmental, and economic costs.** For example, property acquisition and condemnation; business and travel disruption; impacts to public parks and recreation, and construction involving the regulated floodplain, over-water work, and the Willamette Greenway. Quantifying these costs was outside of the scope of the Task Force.
10. **Currently, Salem does not have adopted standards for travel times between points and has not established a threshold above which a travel time is considered unacceptable.** Salem does have adopted standards for roadways and intersections related to volumes and capacities. The preferred options would result in improvements to these standards, but traffic growth over time would erode these gains.
11. **Seismic retrofits are likely for the Center Street Bridge but unlikely for the Marion Street Bridge.** The Oregon Department of Transportation (ODOT) will be conducting a study to determine whether the Center Street Bridge needs to be seismically retrofitted and, if so, the cost for retrofitting. Depending on the results of the study, ODOT may retrofit the bridge; $60 million was identified in legislation towards this work. ODOT has determined it will not retrofit the Marion Street Bridge because doing so is not cost-effective.

R: Recommend FR: Further Research NO: Do Not Recommend Blank: Space left blank	Potential Action/Project/Policy/Funding	Description	Yellow: Short-Medium Term Blue: Medium-Long Term Green: Long-Term Purple: Funding Strategy	Results/Cost Estimate
R4	Guide signage	Improve guide signage leading up to and on the bridges	Short-term	$250,000 per location
R4	Increase pedestrian delays	Increase pedestrian delays at signalized intersections during peak periods	Short-term	Staff time only
R4	Musgrave Avenue connector	Remove the barrier on Musgrave Avenue east of Wallace Road to allow traffic to access Wallace Marine Park	Short-term	$50,000
R4	Travel time signage	Install travel time signage in the study area	Short-term/Medium-term	$500,000 - $1 million each sign
R2, FR2	Variable speed limit signs	Install variable speed limit signs on Highway 22	Short-term/Medium-term	$500,000 - $1 million each sign
R2, FR2	Parking Management	Switch from Monthly to Daily Fee Parking, Vary rates during day to discourage parking at peak periods, Increase pricing for parking at structures and on-street, tax parking spaces, offer parking cash-out programs	Short-term	To be determined
R2, FR2	Downtown circulator	Provide increased transit circulation in downtown area	Short-term/Medium-term	To be determined
R2, FR2	Park and Walk/Bike/Shuttle	Provide park and walk/bike/shuttle services at Wallace Marine Park	Short-term/Medium-term	To be determined
R2, FR2	Taggart Dr/Wallace Rd	Add additional through and/or right turn lane on the east and wesbound Taggart Dr approaches	Medium-term	$10 million
FR4	Parking Pricing	Implement or increase parking costs	Short-term	Reduces peak hour vehicle demand and increases alternative modes

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FR4	Identify acceptable travel time standards	Research and conduct outreach to the public to assess perceptions and thresholds for levels of congestion for road users	Short-term	Increases public understanding of costs and benefits of projects
FR4	2nd Street Undercrossing	Connect 2nd Street under Wallace Road to the proposed Marine Drive roadway, build an additional off-ramp lane from Marion Street bridge to 2nd St/Marine Dr	Medium-term/Long-term	$30 - $40 million
FR4	Front Street minor arterial	Widen Front Street to a minor arterial standard	Medium-term/Long-term	To be determined
FR4	Murlark Avenue connector	Extend Murlark Avenue north to Glen Creek Road	Medium-term	$15 - $20 million
FR4	Gas Tax	Sales tax imposed on sale of gasoline to fund transportation or road projects. Requires voter approval.	Funding Strategy	
FR4	Bonds	Issued by the City to fund capital projects such as building highways or road improvement projects. Requires voter approval.	Funding Strategy	
R2, FR1, Blank1	Close north crosswalk at Front St/Court St	Close north crosswalk at Front St/Court St	Short-term	Decreases vehicle delay for vehicles turning right off Court St onto Front St
R2, FR1, Blank1	Improve signal timing/Adaptive signal timing	Study signal timing or look at intersections that could benefit from advanced traffic signal management	Short-term	Improve vehicle operations
R2, FR1, Blank1	Improve incident management	Improve response to emergencies on the bridges	Short-term	Improve vehicle operations by clearing roadways of accidents
R1, FR1, Blank2	Construct Marine Drive from Cameo to Harritt Drive	Construct Marine Drive from Cameo to Harritt Drive	Short-term/Medium-term	Provides alternate north-south route of Wallace Road
R1, FR1, Blank2	Flexible work hours	Work with State and major employers to develop and implement a commute trip reduction plan that includes flexible work hours	Short-term	Reduces peak hour vehicle volume
R1, FR1, Blank2	Multimodal/carpool incentives	Work with State and major employers to develop and implement incentives for employees to use other modes of transportation (bike, walk, transit, carpool)	Short-term	Reduces peak hour vehicle demand and increases alternative modes
R3, NO1	Bike/Ped connections to Union St Bridge	Continue to expand and build pedestrian and bicycle connections to the Union St Bridge	Short-term/Medium-term	To be determined

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R3, NO1	Median/Turn restrictions on Wallace Road	Install a center lane barrier or prohibit turns from Wallace onto Taggart Drive	Short-term/Medium-term	To be determined
R2, NO2	Center St bridge Solution Package #1	Widen Wallace Rd to three lanes SB onto Center St bridge, add fifth lane on Center St bridge, remove signal at Center St bridge off-ramp to Front St NB, widen Front St NB to three lanes from Center St bridge off-ramp to Commercial St (up to Market St), widen the Front St approach to dual exclsuive right turn lanes and dual exclusive through lanes at Commercial St/Trade St	Long-term	$100 - $137 million
R2, NO2	Marion St bridge Solution Package #4b	Triple southbound right turn lanes on Commercial, four through lanes on Marion St, add fifth lane to Marion St bridge, three lane off-ramp to Wallace Road, widen Wallace Rd to 3 northbound lanes through Glen Creek Rd	Long-term	$55- $65 million
R2, NO2	Widen High St southbound	Extend two southbound lanes on High St from Union St to Liberty St (remove parking) and make southbound right turn free flow at Marion St	Medium-term	$500,000 - $1 million
FR3, NO1	Multi-modal grade-separated crossing of Front St	Install a grade-separated crossing of Front St between downtown and Riverfront Park and remove the existing pedestrian crossings of Front St	Medium-term	$10 - $20 million
FR3, NO1	Multi-modal grade-separated crossing near Marion St/High St	Install a grade-separated crossing near Marion St/High St and remove the existing pedestrian crossings at the intersection to reduce vehicle delay	Medium-term	$10 - $20 million
FR3, NO1	Wallace Road through and turn lanes	Add through and right turn lanes to Wallace Road (from Highway 22 to Brush College Rd)	Medium-term/Long-term	$120 - $150 million
FR2, NO2	Congestion Pricing	Implement a charge for roadway or bridge trips during the peak periods	Short-term/Medium-term	Decreases demand and funds transportation improvements.
NO3, Blank1	Central Salem Mobility Study	Revisit adopted projects from Central Salem Mobility Study that reduce vehicle capacity	Short-term	

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NO3, Blank1	Marion St bridge Solution Package #4a	Triple southbound right turn lanes on Commercial, four through lanes on Marion St, add fifth lane to Marion St bridge, Off-ramp to Marine Dr which connects up to Riverbend Road	Long-term	$80 - $95 million