

SECTION 1 INTRODUCTION

What are the primary features of the I-405, NE 8th Street to SR 520 Improvement Project?

The proposed I-405, NE 8th Street to SR 520 Improvement Project is part of the overall I-405 corridor program designed to improve safety, reduce congestion, and add capacity along the I-405 corridor. The I-405, NE 8th Street to SR 520 Improvement Project extends approximately 1.5 miles north along I-405, from south of NE 8th Street to the SR 520 interchange, and approximately 1.6 miles east along SR 520, from the I-405 interchange to east of 124th Avenue NE.

The primary features of the I-405, NE 8th Street to SR 520 Improvement Project are as follows:

- Construct grade-separated ramps (referred to as braids) on northbound I-405 to separate the I-405 traffic exiting to SR 520 from traffic entering I-405 at NE 8th Street in downtown Bellevue;
- Construct a new three-lane eastbound collector-distributor lane on SR 520 to separate the on- and off-ramp traffic between I-405 and 124th Avenue NE;
- Reconstruct the NE 12th Street bridge over I-405;
- Construct an on-ramp from the NE 10th Street bridge (built prior to this project) to SR 520; and
- Reconfigure the ramps from SR 520 to southbound I-405.

What is the purpose of this report?

This discipline report provides details on the analysis performed to address effects on air quality for the I-405, NE 8th Street to SR 520 Improvement Project. We analyze air quality effects to ensure the project will not cause or contribute to poor air quality on a regional and local level.

We conducted this analysis in accordance with the Washington State Department of Transportation (WSDOT) *Environmental Procedures Manual*.¹

¹ WSDOT, 2007a.

² WSDOT, 2001.

What topics are included in air quality?

The air quality analysis includes a review of the existing air quality in the region, a qualitative assessment of construction effects, and a quantitative analysis of the effects of project operation. The I-405 Team considered local and regional effects, and determined whether or not the project meets air quality standards.

Why is air quality important to consider?

Air quality refers to the cleanliness of the atmosphere. Clean air is vital to human health and is a resource protected by various federal, state, and local regulations. Pollutants in air cannot only affect humans, but can negatively affect flora, fauna, and physical structures. Air quality can be affected by the construction and operation of new roadway projects.

What studies were completed?

The Programmatic Environmental Impact Statement (EIS) Air Quality Review¹ evaluated air quality for the I-405 Corridor Program. This corridor-level review evaluated I-405 Corridor Program's regional effects, including the I-405, NE 8th Street to SR 520 Improvement Project study area, but did not evaluate localized carbon monoxide (CO) effects. The information available at that time was insufficient to determine whether and/or to what extent the projects would affect local pollutant levels.

During their analysis of the corridor program, the Puget Sound Regional Council (PSRC) refined the Metropolitan Transportation Plan to be consistent with the I-405 Corridor Program Selected Alternative. The Selected Alternative was found to conform at the regional scale to the Puget Sound region's Air Quality Maintenance Plans.

This report supplements the information in the Programmatic EIS Air Quality Review and provides updated information on air quality. The I-405 Team evaluated the effects of the project by performing modeling of emissions from motor vehicles, both regionally and at specific intersections. Modeling was performed using the State of Washington's suggested model for the years 2005, 2014, and 2030.

What are the key messages from this report?

The key points of this report are as follows:

- The project is currently located in a CO maintenance area.
- The project will not cause or contribute to any new violation or the National Ambient Air Quality Standards (NAAQS).
- Future Mobile Source Air Toxic (MSAT) levels are predicted to be lower than existing levels for the proposed Build Alternative.
- Once the Puget Sound Regional Council (PSRC) includes the project in the Transportation Improvement Plan (TIP), it will meet all conformity requirements.
- After project completion, many of the air quality effects will be positive; the project will improve the traffic operations and relieve congestion, resulting in lower vehicle emissions.

What measures are proposed to avoid or reduce effects?

There are well established best management practices for the minimization of dust released from construction sites, and include watering or covering exposed soil surfaces. No mitigation measures are proposed for project operation effects.

What would happen if we adopt the No Build Alternative?

The No Build Alternative will not cause CO concentrations to exceed the NAAQS established by the U.S. Environmental Protection Agency (EPA).

Although local CO concentrations of the No Build Alternative would decrease compared to existing conditions, CO concentrations are estimated to be slightly higher in 2014 and 2030 than for the Build Alternative. If the project is not constructed, projected increases in traffic volumes on local streets and I-405 will increase delays and lower travel speeds of motor vehicles, both of which would mean higher emissions from vehicle exhaust.

Future MSAT levels are predicted to be lower than existing levels for the No Build Alternative.

CONFORMITY

Regional conformity analyses demonstrate that emissions caused by the project in addition to other existing and future projects do not exceed motor vehicle emissions budgets outlined in the State Implementation Plan (SIP). Project-level conformity analyses are performed for transportation projects located in carbon monoxide and PM₁₀ nonattainment or maintenance areas. Project-level conformity analyses assess the localized impacts of individual projects and compare them to the National Ambient Air Quality Standards (NAAQS).

SECTION 2 PROJECT DESCRIPTION

What is the intent of the I-405, NE 8th Street to SR 520 Improvement Project?

WSDOT is proposing to construct the I-405, NE 8th Street to SR 520 Improvement Project to improve safety and reduce congestion in the vicinity of the I-405 and SR 520 interchange within the city of Bellevue. The improvements will benefit the public by:

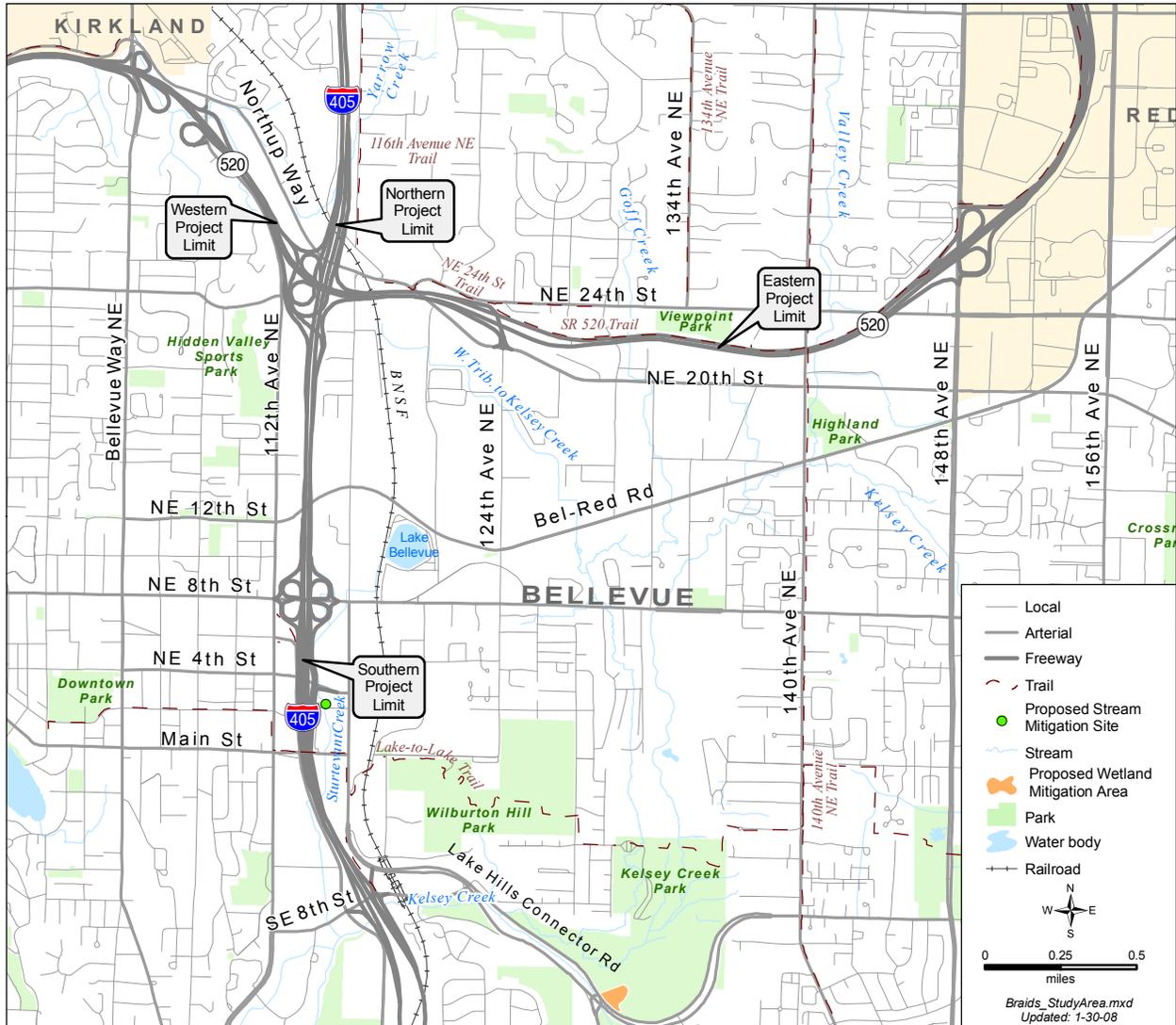
- Reducing congestion for the public and freight vehicles;
- Improving safety;
- Improving access and circulation to and from local streets; and
- Providing opportunities for environmental improvements.

The I-405, NE 8th Street to SR 520 Improvement Project extends approximately 1.5 miles north along I-405, from south of NE 8th Street to the SR 520 interchange, and approximately 1.6 miles east along SR 520, from the I-405 interchange to east of 134th Avenue NE (Exhibit 2-1).

What are the details of the I-405, NE 8th Street to SR 520 Improvement Project?

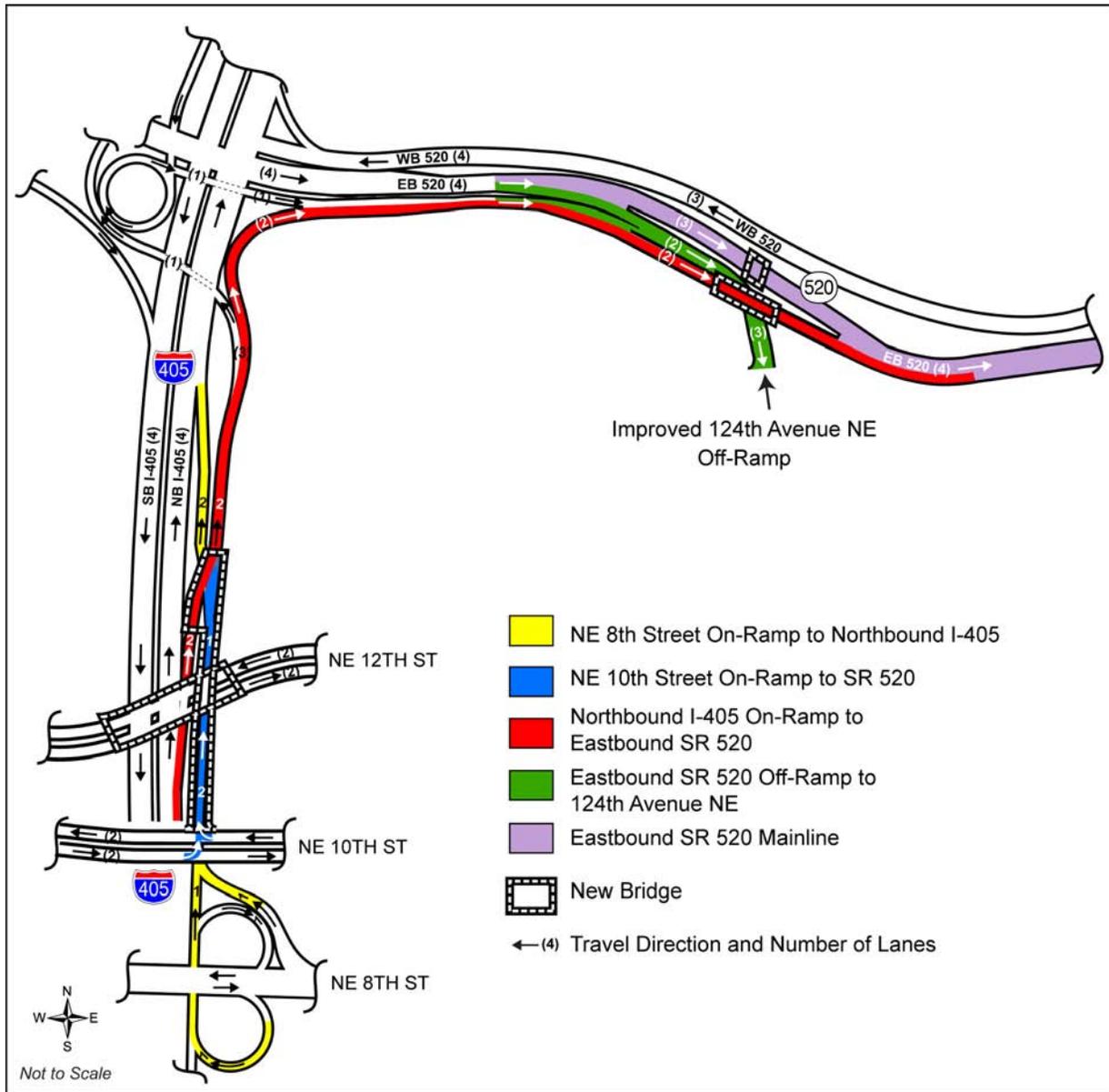
The proposed I-405, NE 8th Street to SR 520 Improvement Project is part of the overall I-405 Corridor Program Master Plan designed to improve safety and reduce congestion along the I-405 corridor. The I-405, NE 8th Street to SR 520 Improvement Project will improve safety and mobility by constructing grade-separated ramps on northbound I-405 to separate the I-405 traffic exiting to SR 520 from traffic entering I-405 at NE 8th Street in downtown Bellevue. On SR 520, a new eastbound collector-distributor lane will also be constructed to separate the on- and off-ramp traffic between I-405 and 124th Avenue NE (Exhibit 2-2). In addition, the ramps from SR 520 to southbound I-405 will be reconfigured to improve traffic flow.

Exhibit 2-1: Project Location and Vicinity



This discipline report analyzes two alternatives, the Build Alternative and the No Build Alternative. The proposed project improvements for the Build Alternative, from south to north on I-405, and west to east on SR 520, are described below. The No Build Alternative is described at the end of this section.

Exhibit 2-2: Proposed Lane Configuration on Northbound I-405 to Eastbound SR 520



Northbound I-405 to Eastbound SR 520 Improvements

- Reconfigure the existing northbound NE 4th Street on-ramp to become an auxiliary lane that exits to SR 520 and northbound I-405 as part of a two-lane exit ramp. See Exhibit 2-3.
- Reconstruct portions of the NE 8th Street on- and off-ramps to and from northbound I-405. The on-ramp will be reconstructed at a lower grade than the I-405 mainline.

What is an auxiliary lane?

An auxiliary lane is a lane added between interchanges—from one on-ramp to the next off-ramp. It is dedicated to traffic entering and leaving a freeway and provides motorists with more time and extra room to accelerate or decelerate and merge when getting on and off the freeway.

What is a collector-distributor system?

Collector-distributor lanes are freeway lanes serving single or multiple interchanges that are physically separated from general freeway lanes. The purpose of collector-distributor lanes is to separate the traffic entering and exiting the freeway from the through traffic.

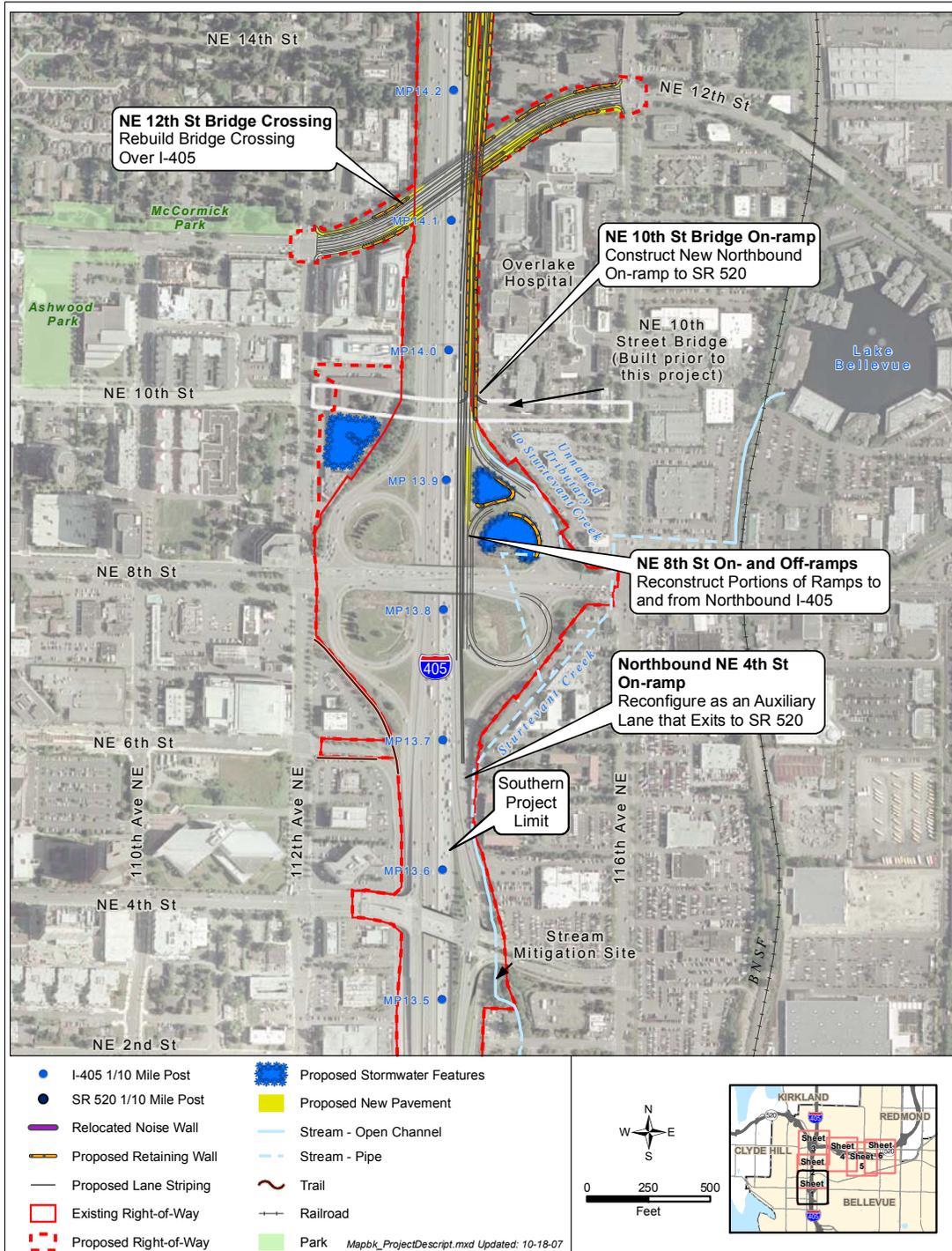
In the simplest form, all ramps that would normally touch the freeway are instead shifted outwards to the collector distributor lanes. There is still weaving, but it is no longer on the main lanes.

- Rebuild the NE 12th Street bridge crossing over I-405 to accommodate the new ramps.
- Construct a northbound on-ramp to SR 520 from a new NE 10th Street bridge crossing; the bridge crossing will be constructed as part of a separate project prior to constructing the on-ramp.
- Construct grade-separated ramps to divide traffic entering northbound I-405 from NE 8th Street and traffic exiting I-405 to SR 520.
- Construct grade-separated ramps to divide traffic entering eastbound SR 520 from northbound I-405 and traffic exiting eastbound SR 520 to 124th Avenue NE.
- Shift eastbound SR 520 mainline travel lanes toward the median.
- Extend the ramp from northbound I-405 to eastbound SR 520 on a collector-distributor system through the 124th Avenue NE interchange to merge with the existing eastbound SR 520 mainline just east of 134th Avenue NE.
- Reconstruct the 124th Avenue NE interchange off-ramp.
- Relocate an existing noise barrier. The new barrier will be approximately 1,585 feet long and 20 feet high.
- Construct several retaining walls needed to allow for the proposed widening of I-405.

SR 520 to Southbound I-405 Improvements

- Reconfigure the ramps from SR 520 to southbound I-405 to improve traffic flow. The westbound SR 520 to southbound I-405 ramp will become a dedicated auxiliary lane, and on-ramp traffic will no longer be required to immediately merge with southbound I-405 mainline traffic. The eastbound SR 520 to southbound I-405 ramp will merge with the dedicated auxiliary lane.

Exhibit 2-3: Project Features - Sheet 1 of 6



I-405, NE 8TH STREET TO SR 520 IMPROVEMENT PROJECT
 AIR QUALITY DISCIPLINE REPORT

Exhibit 2-3: Project Features - Sheet 2 of 6

