REVISED AIR QUALITY SUPPLEMENTAL TECHNICAL REPORT

Oregon Department of Transportation

December 12, 2023

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Executive Summary

This 202**3** Air Quality Supplemental Technical Report analyzes possible impacts to air quality that could result from the Revised Build Alternative for design year 2045 **under two design options, the 2-Way Ramsay Design Option and 2-Way Wheeler Design Option**. **New text inserted since the 2022 Air Quality Supplemental Technical Report is shown in bold text**. **Relative to the 2019 air quality analysis,** this analysis provides updated modeling results for existing conditions (2017) and future (2045) conditions under the No-Build Alternative and Revised Build Alternative using the updated model (Motor Vehicle Emission Estimator (MOVES3) **model**. The area of potential impact (API) for air quality did not change and is the same as what was analyzed in the 2019 Air Quality Technical Report.

This mobile source air toxic (MSAT) analysis shows the Revised Build Alternative **2-Way Ramsay Design Option or the Build Alternative 2-Way Wheeler Design Option are** expected to have MSAT emissions that would be the same **as** or lower than the No-Build Alternative in 2045. The analysis shows future MSAT emissions are estimated to be substantially lower (between **73** percent to 100 percent) than the existing conditions. Compared to the No-Build Alternative, MSAT **emissions** for the Revised Build Alternative would **range from no change** to **9 percent lower for the 2-way Ramsay Design Option and would range from no change to 7 percent lower for the 2-way Wheeler Design Option**.

The burden analysis of transportation criteria pollutants shows that the Revised Build Alternative would result in criteria pollutant emissions **1 percent to 10 percent** lower than the No-Build Alternative **for the 2-way Wheeler Design Option and 3 percent to 12 percent lower for the 2-way Ramsay Design Option** because vehicles would move more efficiently (i.e., less stop-and-go traffic conditions) in the affected roadway network. Similar to MSAT emissions, transportation criteria pollutant tail pipe emissions for **either** Revised Build Alternative **design option** would be lower than existing conditions.

Temporary construction impacts to air quality would be similar to those documented in the 2019 Air Quality Technical Report from fugitive dust and construction equipment exhaust. These emissions would not continue after Project construction is completed. Effects would be localized and would vary throughout the construction process. Control measures, **such as new clean diesel requirements,** would be implemented to address short-term construction effects.

1.0 INTRODUCTION

The I-5 Rose Quarter Improvement Project (Project) Environmental Assessment (EA) was released in February 2019. The Federal Highway Administration (FHWA) published a Finding of No Significant Impact (FONSI) and Revised EA (REA) for the Build Alternative on November 6, 2020. Since the issuance of the FONSI, the Oregon Department of Transportation (ODOT) has made changes to the design of the proposed Build Alternative to create a Revised Build Alternative and re-evaluated the changes in the context of the FONSI/REA. At the conclusion of the re-evaluation, FHWA and ODOT agreed that the design changes require additional analyses beyond what was presented in the REA, and FHWA rescinded the FONSI on January 18, 2022. **ODOT prepared a Transportation Safety Supplemental Technical Report, which was published with the I-5 Rose Quarter Improvement Project Supplemental Environmental Assessment (SEA) on November 15, 2022. In response to public comments received on the SEA, ODOT refined the design of the Revised Build Alternative. This Revised Transportation Safety Supplemental Technical Report reflects changes to the evaluation of the Transportation Safety impacts based on those design refinements, which are described below in Section 2.0. All updated information is shown in bold text.**

2.0 BUILD ALTERNATIVE DESIGN CHANGES

Changes to the Build Alternative include modification to the highway cover design and changes associated with advancements in other elements of the project design, some of which require expansion of the Project Area. This section describes the highway cover design changes and design changes that resulted from advancements in project engineering **and comments on the SEA**. The evaluation of these changes is presented in Section 6.2 of this supplemental technical report.

2.1 DESIGN PROCESS

Through 2021, ODOT facilitated an Independent Highway Cover Assessment, as directed by the Oregon Transportation Commission, that engaged the Project's advisory committees and community members in a series of collaborative workshops to explore the design opportunities for the highway cover. The purpose of the Independent Highway Cover Assessment was to understand **partner** goals and objectives within the Project Area, generate potential highway cover scenarios, and assess the impacts and benefits of these scenarios. The Independent Highway Cover Assessment team worked directly with local community members from the historic Albina neighborhood to understand how the highway cover design concepts might best serve the historic Albina community. The Project's Historic Albina Advisory Board (HAAB),

Executive Steering Committee (ESC) and the Community Oversight Advisory Board (COAC) also provided input as part of the Independent Highway Cover Assessment process. These sessions explored potential opportunities for economic development in the Albina community and the highway cover design concepts.

In July 2021, Oregon Governor Brown convened a series of meetings with Project **partners** and community organizations to discuss the design concepts developed in the Independent Highway Cover Assessment. In August 2021, the HAAB—as supported by the ESC and the COAC, and through the Governor-led process—recommended "Hybrid 3" as the preferred highway cover design concept (Figure 1). The Hybrid 3 highway cover design concept represents a proposed community solution to maximize developable space on a single highway cover. The Hybrid 3 highway cover design concept maintains the commitment for the Project to create opportunities for the local community to grow wealth through business ownership and long-term career prospects through the Project's Disadvantaged Business Enterprise and workforce program. Following the community and **partner** recommendations, in September 2021, the Oregon Transportation Commission directed ODOT to advance further evaluation of the Hybrid 3 highway cover design concept, with conditions related to the Project's funding process and other technical analyses.

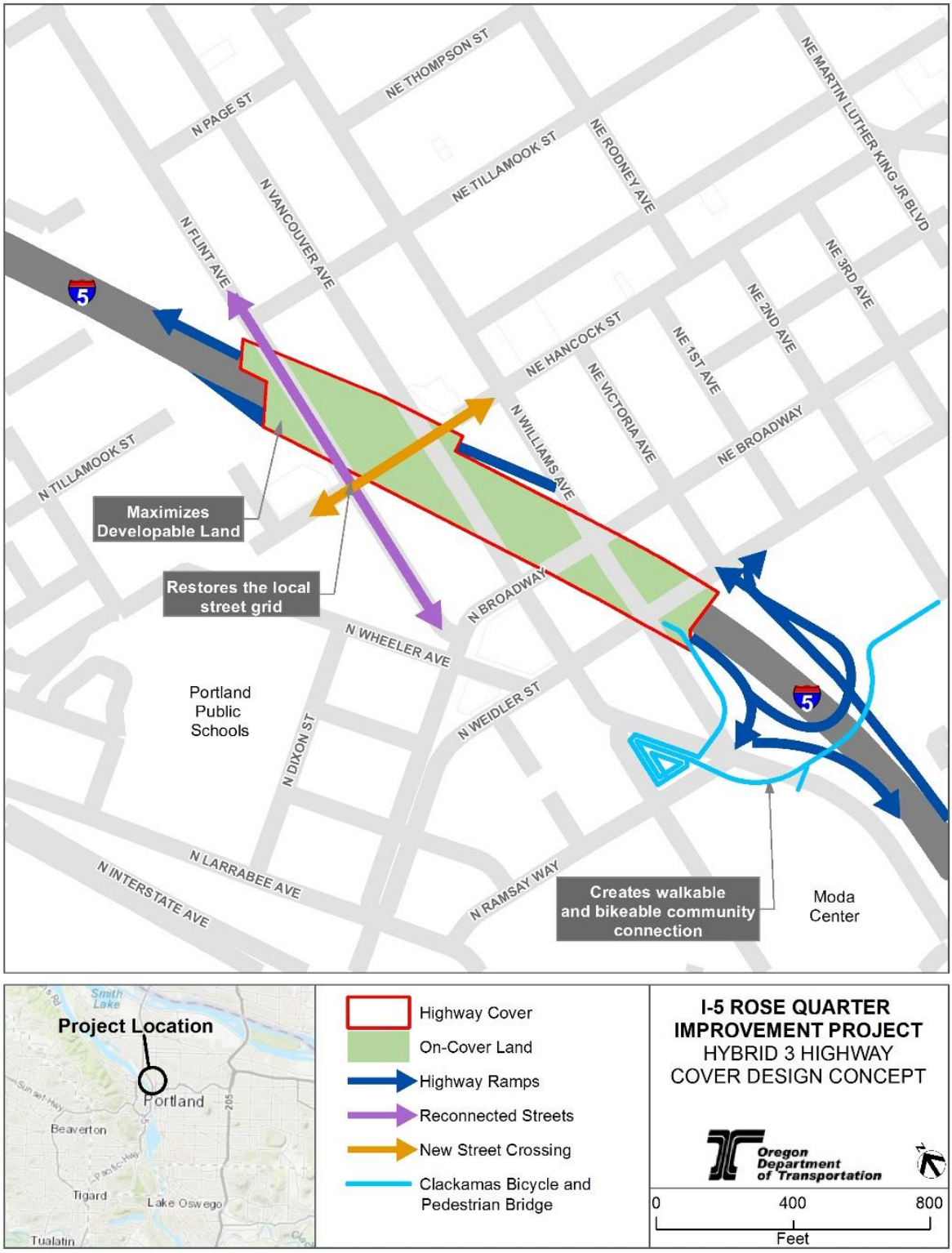
In January 2022, Governor Brown entered into a Letter of Agreement with the City of Portland, Metro, and Multnomah County that demonstrated their shared understanding and collective support for the Hybrid 3 concept as part of the Project. The Letter of Agreement specifically highlights the desire to connect the Lower Albina neighborhood, create buildable space, and enhance wealth-generating opportunities for the community, while simultaneously addressing the area's transportation needs. Additionally, the Letter of Agreement supports the development of a process to define the future development vision for what could ultimately be built on top of the highway cover upon Project completion – this process is referred to as a Community Framework Agreement. The Letter of Agreement states that the City of Portland will lead a Community Framework Agreement process and that it should be between the City of Portland, ODOT, other state agencies and local jurisdictions as necessary, with the participation of organizations that represent the Albina community and Black residents. Any future real estate or open space development on top of the cover would require executing long-term air rights and lease agreements, and that any such actions or decisions are subject at all times to applicable local, state, and federal laws including but not limited to land use and NEPA processes.

In June 2022, ODOT and the City of Portland executed an Intergovernmental Agreement (IGA), building upon the January 2022 Letter of Agreement. The IGA further states that the City will lead the future highway cover land use, programming and development processes and development of a Community Framework Agreement, in consultation with the ODOT to ensure

the highway, local streets and resulting land parcels within the Project are coordinated. As such, ODOT would construct the highway cover as part of the Project and the City of Portland would lead the process to define what is ultimately built on the new land created by the Project's highway cover. In the IGA, both ODOT and the City agreed that ODOT will retain ownership of the highway cover structure and the new developable area created on the highway cover structure upon Project completion.

FHWA and ODOT released the I-5 Rose Quarter Improvement SEA on November 15, 2022. In response to comments on the SEA, ODOT refined the design of the Revised Build Alternative. The sections below describe the highway cover design changes and the design changes that resulted from advancements in project engineering and **comments on the SEA and** are incorporated into the Revised Build Alternative.

Figure 1 Hybrid 3 Highway Cover Design Concept **with Ramp Reconfiguration**

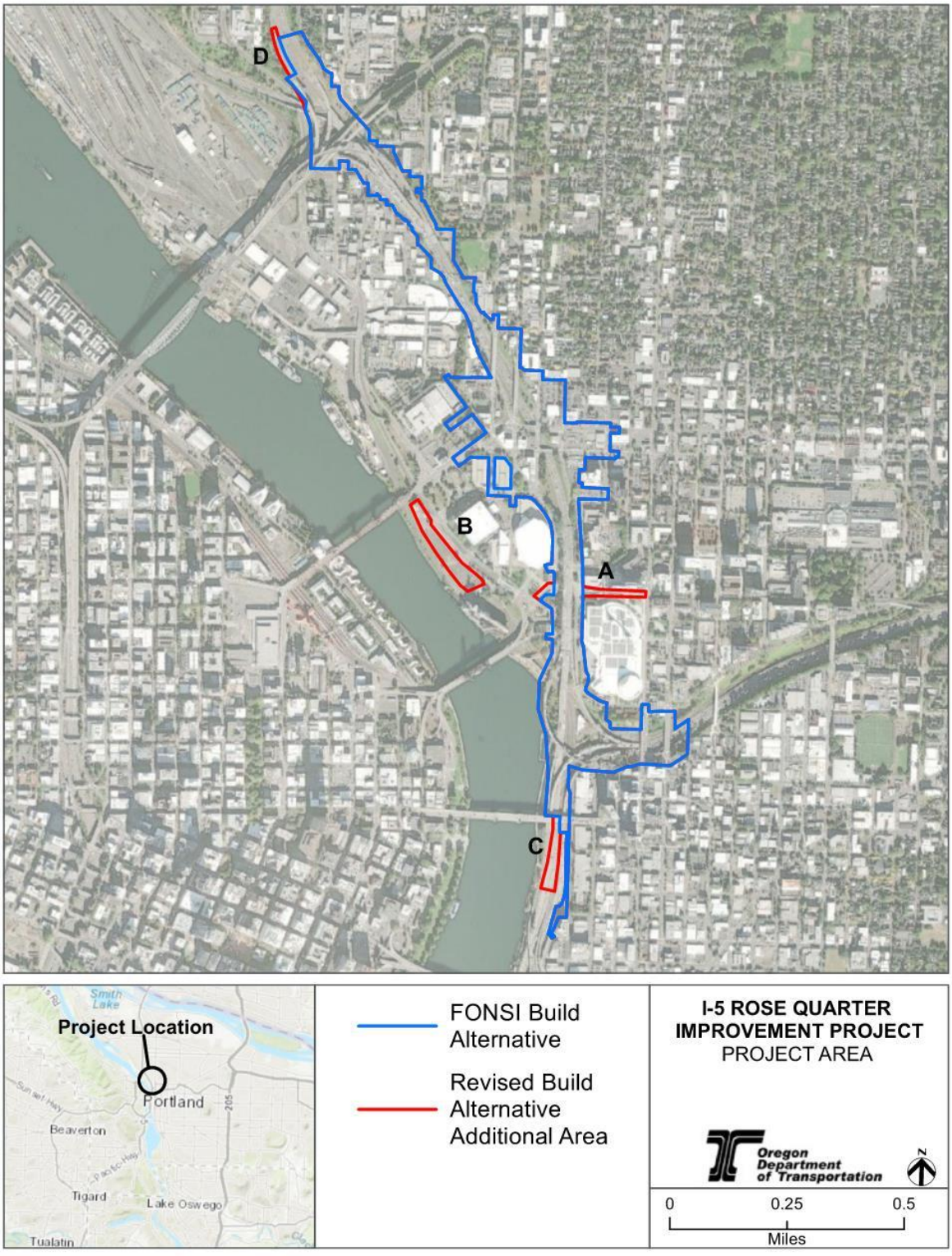


2.2 PROJECT AREA

The Project Area is defined as the area within which improvements are proposed, including where permanent modifications to adjacent parcels may occur and where potential temporary impacts from construction activities could result. As Project design information advanced, some changes required expansion of the Project Area presented in the REA and FONSI. In total, approximately 8.7 acres would be added to the Project Area. The changes are as follows, with letter references to the areas shown in Figure 2:

- A: Utility conflicts with Light Rail Transit (LRT) along NE Holladay Street between N Interstate Avenue and NE Martin Luther King Jr. Boulevard required expanding the Project Area by 1.9 acres to include additional overhead utility relocations (label A in Figure 2).
- B: An existing parking lot (known as Aegean Lot) south of N Interstate Avenue and the Broadway Bridge may be used for contractor staging during construction and is added to the Project Area (label B, Figure 2). ODOT identified this 4.3-acre construction staging area for contractor use based on its location, size, and suitability recognizing that, because of the urban setting and high-density land development in the construction area, it would be difficult for a construction contractor to find the space needed near or next to the project work areas for equipment staging, material storage, and the required co-location space for the contractor/construction personnel. This location meets all of the Project requirements: large level open space, proximity to the project work areas, and access for staging/storage of materials and equipment. Any materials stored in the area and site runoff would be subject to the same regulations as required throughout the project site.
- C: The southern end of the Project Area is expanded by 2.4 acres to include the portion of I-5 south of the Burnside Bridge proposed for a retrofit of the existing bridge rail, restriping the existing freeway, and installation of new guide signs (label C, Figure 2).
- D: At the northernmost end of the Project Area, a 1.1-acre area of ODOT right of way along the I-5 shoulders is now included in the Project Area for fiber optic conduit (label D, Figure 2).

Figure 2 Previous and Current Project Area.

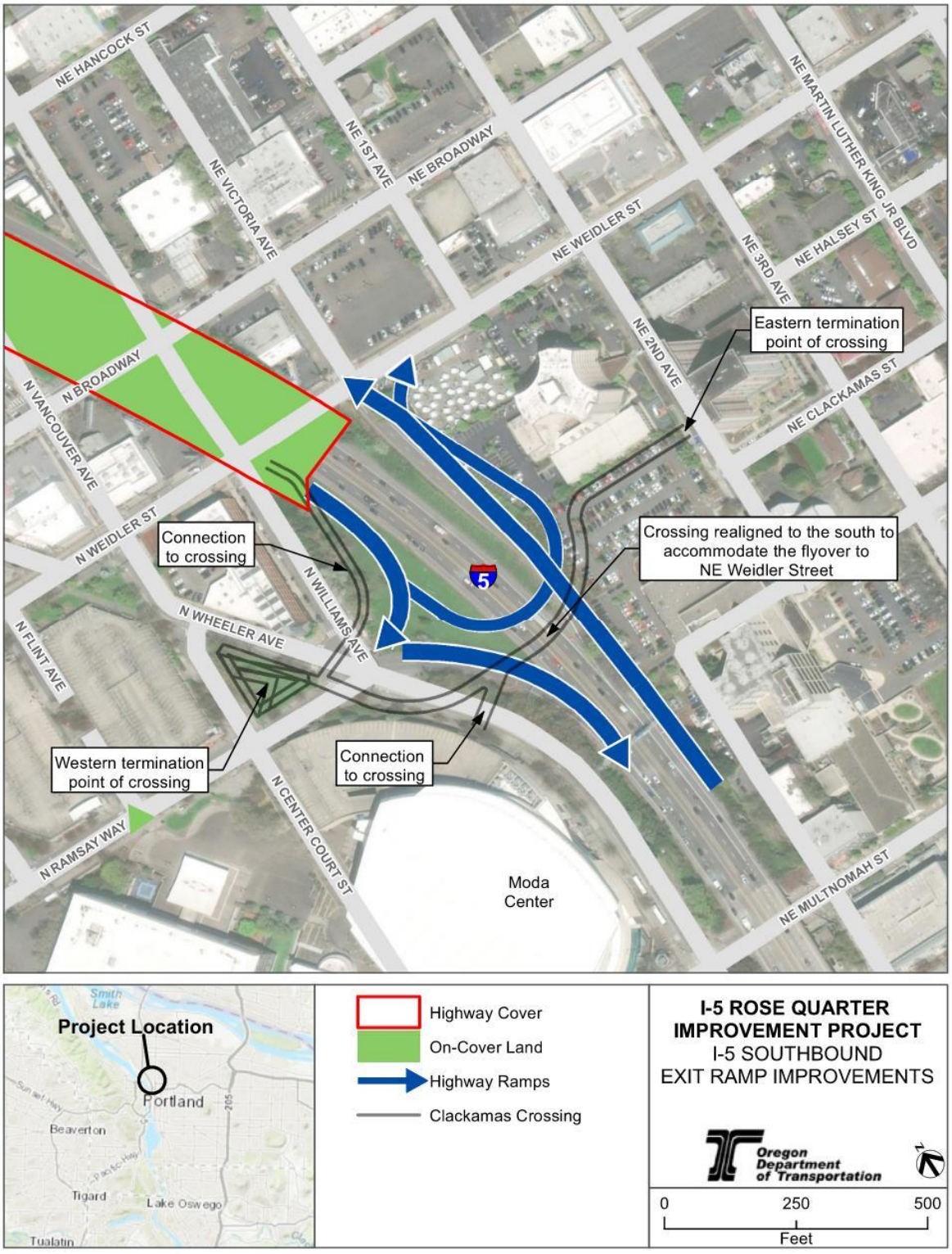


2.3 I-5 MAINLINE IMPROVEMENTS CHANGES

The Build Alternative included relocation of the I-5 southbound **entrance** ramp at N Wheeler Avenue to N/NE Weidler Street at N Williams Avenue via the new Weidler/Broadway/Ramsay highway cover, construction of auxiliary lanes and full shoulders (12 feet in width) on I-5 between I-405 and I-84 in both directions, and associated improvements to I-5 through the Project Area. The Revised Build Alternative includes the following changes to those elements of the Build Alternative:

- Move the I-5 southbound exit ramp termini from N Broadway to N Wheeler Avenue/ N Williams Avenue/N Ramsay Way (westbound) **and NE Weidler Street (eastbound). The exit ramp would divide westbound traffic from eastbound traffic as seen in Figure 3, with a single lane connection at N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way and single lane bridge (flyover) over I-5 to connect with NE Weidler Street.**
- Reduce the freeway median shoulder through the entire Project Area, from 12 feet to 8 feet (4 to 5 feet within highway cover). The outside shoulder width of 12 feet remains unchanged.
- Relocate Noise Wall 24 from N Commercial Avenue near Harriet Tubman Middle School to attach to Walls 1 and 2 along the east edge of I-5.
- Keep the I-5 southbound entrance ramp from **N** Wheeler Avenue/ N Williams Avenue/ N Ramsay Way on the existing alignment rather than relocate it to parallel N Williams Avenue.
- On I-5 south of the Burnside Bridge: retrofit existing bridge rail, restripe freeway in both the northbound and southbound directions, and install new guide signs on an existing sign structure in the southbound direction.

Figure 3 I-5 SB Exit Ramp: Traffic Splitting Eastbound from Westbound Traffic

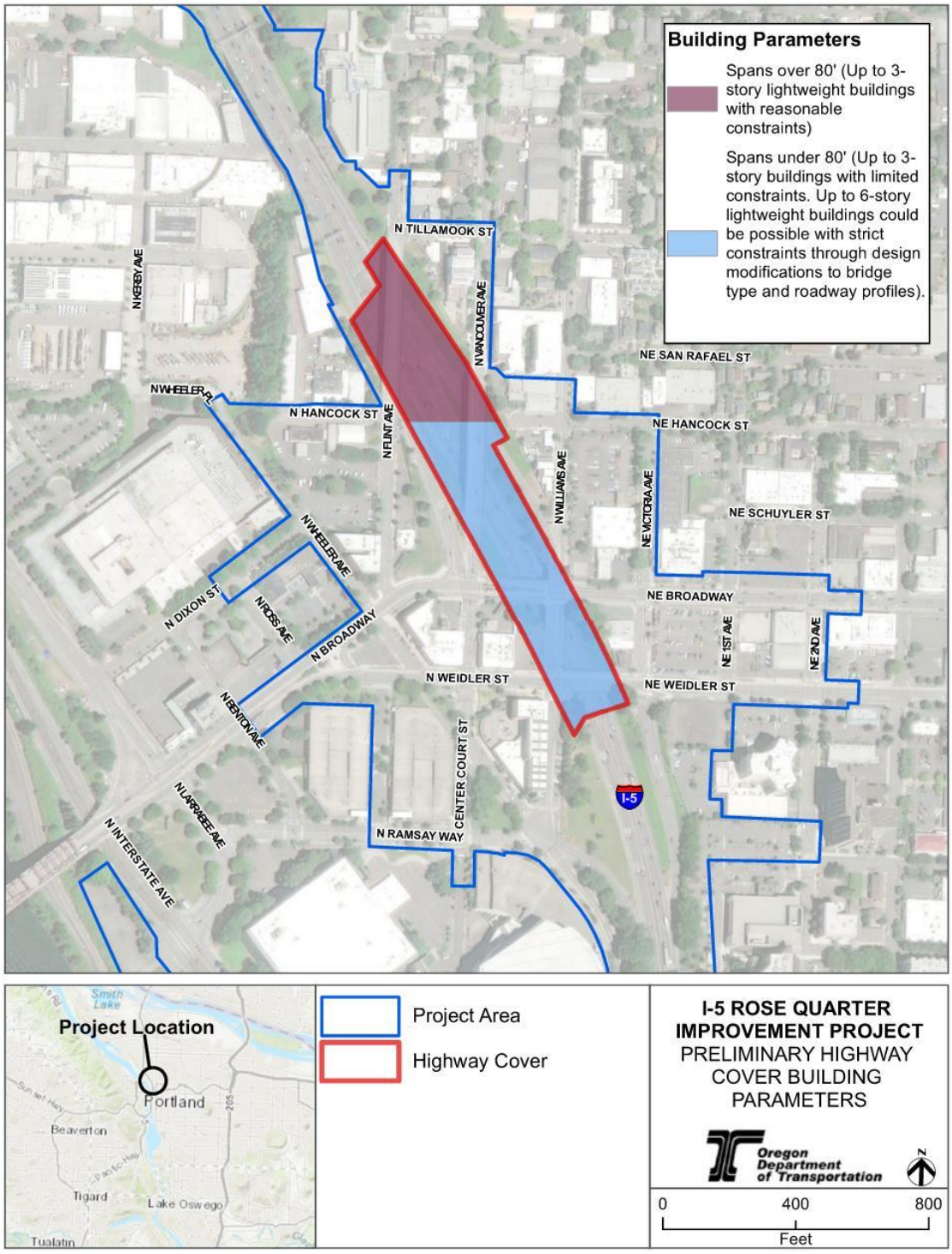


2.4 HIGHWAY COVER CHANGES

The Build Alternative included the construction of two highway cover structures over I-5 for roadway crossings and other purposes. The Revised Build Alternative, based on Hybrid 3 (see Figure 1), includes the following changes to the highway covers:

- Provide one continuous highway cover over I-5 rather than separate covers at the existing N Flint Avenue, NE Weidler Street, NE Broadway, N Williams Avenue, and the N Vancouver Avenue overcrossings.
- Expand the limits of the highway cover by approximately 35 feet to the west and approximately 400 feet to the north.
- Design and construct the highway cover to accommodate multi-story buildings. Due to span length and site constraints, design would constrain building size, location, type, and use on portions of the cover (Figure 4). Generally, buildings up to three stories could be accommodated throughout the highway cover. Buildings of up to six stories could be accommodated where span lengths are shorter than 80 feet with strict design constraints.

Figure 4 Building Parameters on the Cover



Future development on the highway cover would follow a community process according to the City-led Community Framework Agreement, as described in Section 2.1. ODOT anticipates this process could continue past completion of cover construction.

As part of the Project, ODOT anticipates programming interim uses on the highway cover for the time period between Project completion and when the City-led development process would be implemented. Upon Project completion, the added surface space created by the highway cover over I-5 could provide an opportunity for new and modern bicycle facilities, making the area more connected, walkable and bike friendly. It could also provide opportunity for various potential types of public spaces, to be precisely determined during the Project's final design phase and through robust community engagement, consisting of one or more of the following types of uses:

- Landscaped areas for **accessible,** active, and passi**ve** recreation and/or to provide a buffer, backdrop and visual comfort, such as gardens, lawns or planter beds.
- **Accessible** plazas and hardscaped open space for active and passive recreation, such as courts, plazas, splash pads, picnic areas, and community gathering spaces.
- **Accessible** interpretive signage, historical markers, landmarks and other areas of historical recognition and narrative such as art pieces and other historical signage/kiosks and pavement focused on the historic Albina community.
- Temporary and lightweight vertical features to support episodic, mobile commercial activities such as **accessible** food market shed, eating pavilion, food carts, or picnic venues.

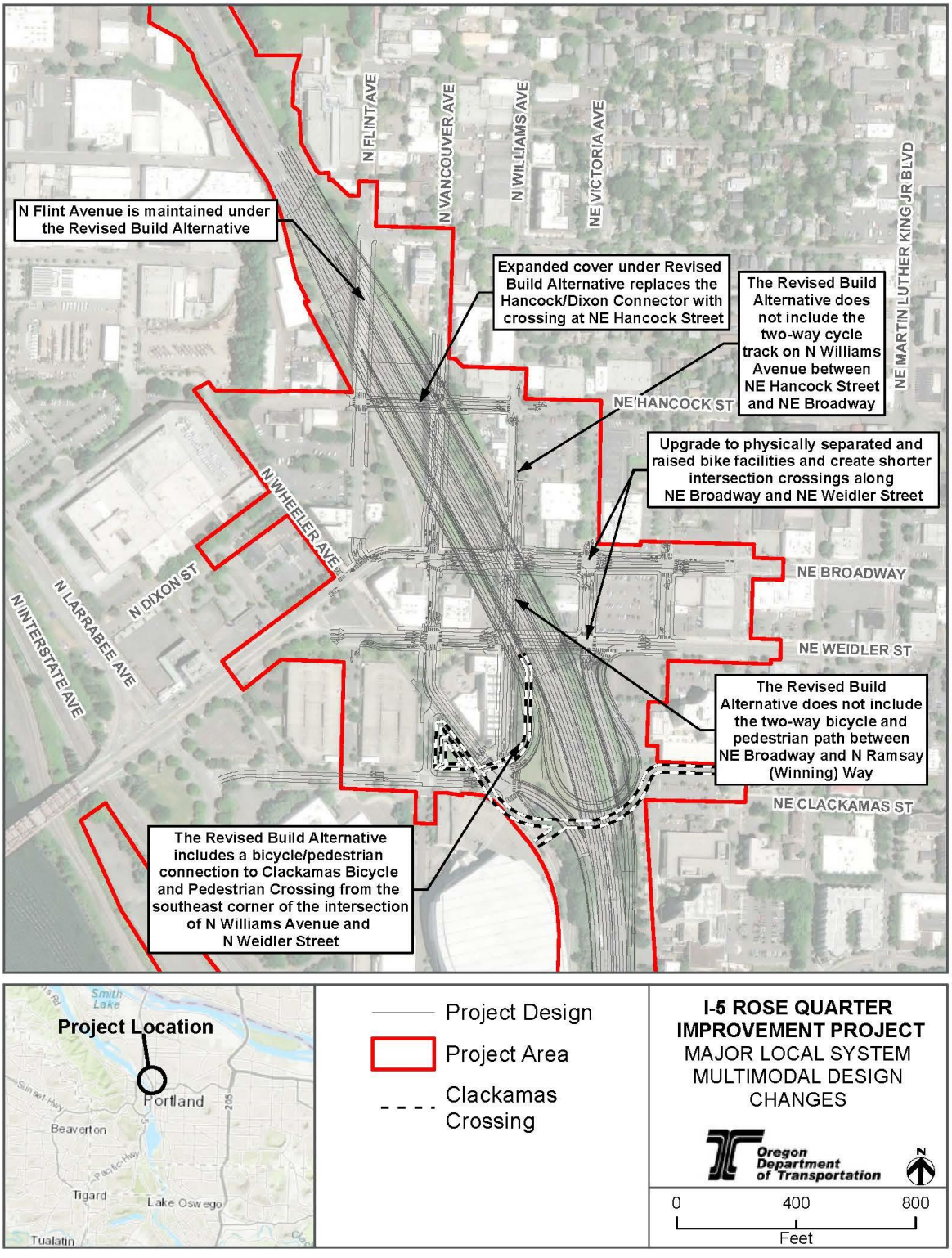
These features may be removed upon implementation of the development determined by the community process or may be incorporated into that development.

2.5 RELATED LOCAL SYSTEM MULTIMODAL IMPROVEMENTS CHANGES

The Revised Build Alternative includes the following changes to local system multimodal improvements to accommodate the Hybrid 3 design concept and subsequent design refinements (see Figure 5 below):

- **Construct** the **accessible** Clackamas Bicycle and Pedestrian Crossing **(a.k.a. Clackamas Crossing):**
  - **Realign the crossing to the south to accommodate the flyover to NE Weidler Street**
  - **Relocate the western termination point of the crossing to the triangle of land framed by N Center Court Street, NE Wheeler Avenue, and N Ramsay Way.**
  - **Provide the following connections to the crossing (to be confirmed in the final design phase):**
    - **From the southeast corner of the intersection of N Williams Avenue and N Weidler Street that spans over N Wheeler Avenue and connects to the crossing, and**
    - **From the Garden Garage, which is attached to the Moda Center**
  - Construct wider sidewalks and bike lanes at sidewalk level and physically separated from the roadway with a curb and provide protected bike signal phases at multiple intersections along NE Broadway and NE Weidler Street.
- Connect N Flint Avenue across I-5 from NE Tillamook Street to N Hancock Street and terminate it at N Broadway.
- Remove the NE Hancock Street overcrossing of I-5 from N Williams Avenue to N Dixon Street as proposed in the Build Alternative. NE Hancock Street would be extended across I-5 and reconnect to NE Hancock Street west of N Flint Avenue as part of the expanded highway cover. **Permitted traffic modes and roadway profile to be determined during design.**
- Remove the two-way cycle track on N Williams Avenue between NE Hancock Street and NE Broadway and a two-way bicycle and pedestrian path between NE Broadway and N Ramsay Way from the design and instead convert the on-road bike lane to a protected bike lane, with a transition to the existing on-road bike lane at or near NE Hancock Street (to be confirmed in the final design phase).

Figure 5 Major Local System Multimodal Design Changes

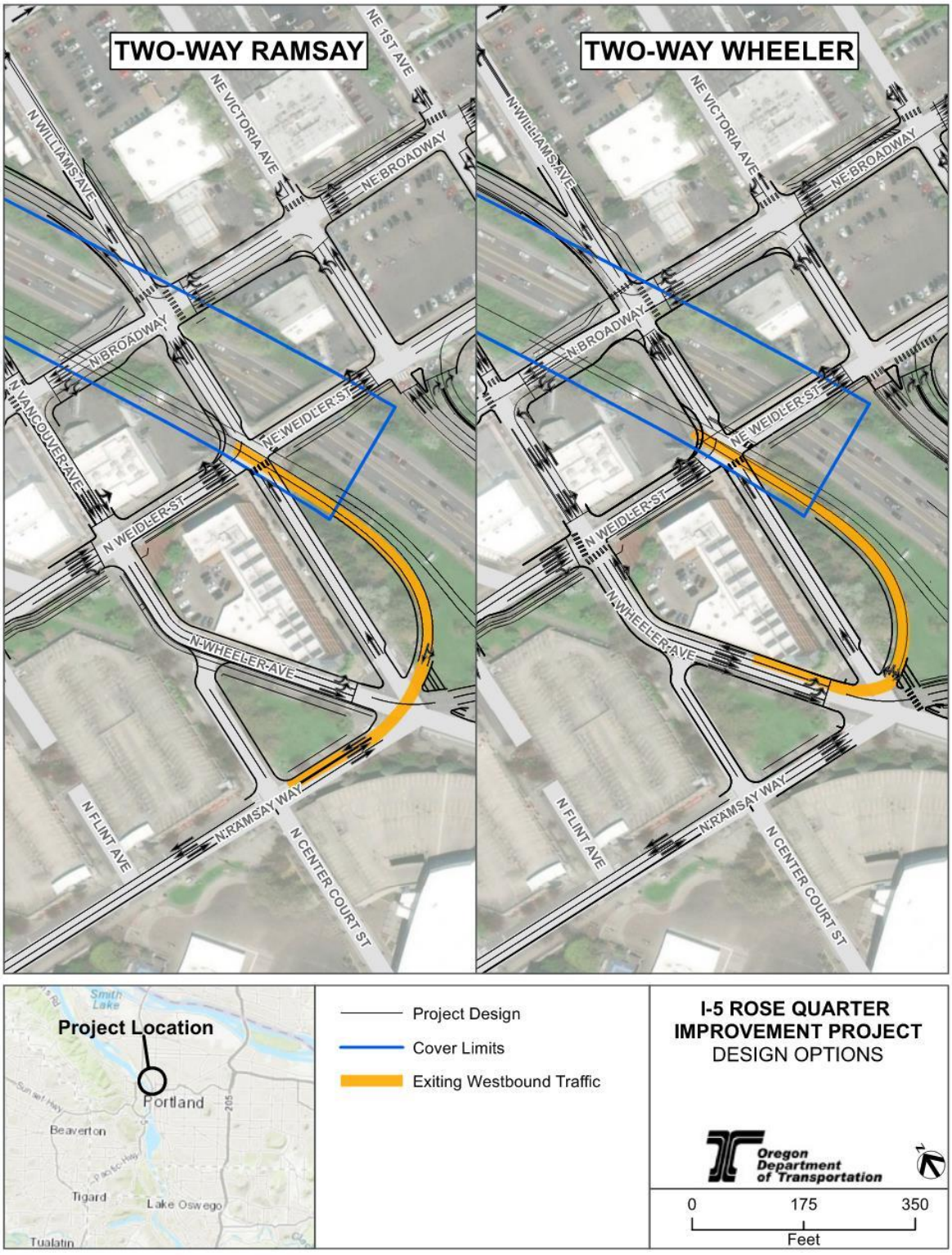


To accommodate I-5 southbound traffic exiting at N Wheeler Avenue/ N Williams Avenue/ N Ramsay Way, ODOT is considering two design options, both of which are evaluated in this report (Figure 6):

- **2-way Ramsay Design Option - Convert N Ramsay Way between N Center Court Street and NE Wheeler Avenue from an eastbound one-way facility to a two-way facility.**
- **2-way Wheeler Design Option - Construct a new northbound travel lane on NE Wheeler Avenue between N Broadway and N Ramsay Way and maintain the three existing southbound travel lanes between N Weidler Street and N Ramsay Way.**

Both design options also include a left turn movement from the I-5 southbound exit ramp to southbound N Williams Avenue. This movement was previously accommodated via N Wheeler Avenue/ N Vancouver Avenue between N Broadway and N Ramsay Way.

Figure 6 Design Options for I-5 SB Exit Ramp: Traffic Heading West



3.0 REGULATORY FRAMEWORK

The regulatory framework is the same as described in the 2019 Air Quality Technical Report with some updates. Most recently, the Climate Protection Program went into effect at the end of 2021 and will improve the carbon intensities of Oregon's transportation fuels, which will reduce criteria pollutant and MSAT emissions[1]. This analysis does not reflect those improvements because they are new and not yet incorporated in the United States Environmental Protection Agency (EPA) Motor Vehicle Emissions Simulator (MOVES) model. Therefore, the emissions reductions presented for the Revised Build Alternative could be lower once the program goes into effect. **Two additional changes include DEQ's Clean Trucks Rules 2021[2] and Advanced Clean Cars II.[3] [4]**

3.1 METHODOLOGY AND DATA SOURCES

The methodology and data sources are the same as those described in the 2019 Air Quality Technical Report with three exceptions. First, traffic data for the Revised Build Alternative used in this supplemental air quality analysis (Appendix A) was developed consistent with the methods described in Section 4 of the 2019 Air Quality Technical Report. Second, the EPA MOVES **model** has been updated since publication of the 2019 Air Quality Technical Report. Specifically, the previous version of MOVES (MOVES2014a) used in the 2019 Air Quality Technical Report has been updated and the latest MOVES version (MOVES3. **1.0**, abbreviated as MOVES3) was used in this analysis to evaluate pollutant emissions for existing conditions, the Revised Build Alternative **(both design options)**, and the No-Build Alternative. Third, the burden analysis in this report includes MSAT as well as transportation criteria pollutants, which were not included in the 2019 Air Quality Technical Report. Criteria pollutant emissions estimates include the precursors for ozone, volatile organic compounds and oxides of nitrogen (VOC and NO_X), particulate matter (10-microns or smaller [PM_{10}] and 2.5 microns or smaller [$PM_{2.5}$] inclusive of brake wear and tire wear), and carbon monoxide (CO). Consistent with the 2019 Air Quality Technical Report, the MOVES3 model was run for analysis years 2017 (existing conditions) and 2045 (No-Build Alternative and Revised Build Alternative). The processes selected in the modeling were done per EPA guidance.

The affected roadway network used in the modeling is the same as was used in the 2019 Air Quality Technical Report (see Figure 5 of this report) because the links that meet the FHWA criterion for the affected network for the Revised Build Alternative are the same as those for

[1] https://www.oregon.gov/deq/rulemaking/Pages/rghgcr2021.aspx
2 https://www.oregon.gov/deq/EQCdocs/111721_C_CleanTrucks.pdf
3 https://www.oregon.gov/deq/rulemaking/Pages/CleanCarsII.aspx
4 Additional updates that do not change the analysis include the 2023 updated Council on Environmental Quality guidelines, updates to MSAT information, and the ODEQ construction guidance.

the Build Alternative. Differences in traffic data associated with the Revised Build Alternative are identified in the traffic analysis for the Project (see Traffic Analysis Supplemental Technical Report). Revised Build Alternative vehicle miles traveled (VMT) and speed input data were updated to reflect the revised traffic analysis and included in the model. The VMT and speeds for existing conditions and No-Build Alternative are unchanged relative to what was analyzed in the 2019 Air Quality Technical Report. The inputs in the MOVES3 run specifications (runspecs) and County Data Manager are the same as those used in the 2019 Air Quality Technical Report except that additional processes were selected in the run spec for criteria pollutants and the data inputs were updated with the new traffic data (Table 1 and Table 2).

The run specs for each analysis year are as follows:

- Existing Conditions (2017)
  - I5RQ_CRITERIA_2017.mrs
  - I5RQ_DPM_2017_All_Rds.mrs
  - I5RQ_STD_2017_All_Rds.mrs
  - I5RQ_ZEV_2017_All_Rds.mrs
- No-Build Alternative (2045)
  - I5RQ_CRITERIA_2045NB.mrs
  - I5RQ_DPM_2045NB_All_Rds.mrs
  - I5RQ_STD_2045NB_All_Rds.mrs
  - I5RQ_ZEV_2045NB_All_Rds.mrs
- Revised Build Alternative (2045) **2-Way Ramsay Design Option**
  - I5RQ_CRITERIA_2045BD_**2Ramsay_All_Rds.mrs**
  - I5RQ_DPM_2045BD_**2Ramsay_All_Rds.mrs**
  - I5RQ_STD_2045BD_**2Ramsay_All_Rds.mrs**
  - I5RQ_ZEV_2045BD_**2Ramsay_All_Rds.mrs**
- **Revised Build Alternative (2045) 2-Way Wheeler Design Option**
  - **I5RQ_CRITERIA_2045BD_2Wheeler_All_Rds.mrs**
  - **I5RQ_DPM_2045BD_2Wheeler_All_Rds.mrs**
  - **I5RQ_STD_2045BD_2Wheeler_All_Rds.mrs**
  - **I5RQ_ZEV_2045BD_2Wheeler_All_Rds.mrs**

See Appendix A for additional detail on traffic used in this analysis.

Table 1 MOVES3 Runspec Selections

Input Name	Selection
Scale	County
Calculation Type	Inventory
Time Spans	Analysis Years: 2017-existing, 2045-design year Time Aggregation: All hours, weekdays
Months of Analysis	January, April, July, October
Region	County
Geographic Bounds	Oregon, Multnomah County
Vehicles/Equipment	Diesel Fuel: combination long-haul truck, combination short-haul truck, light commercial truck, passenger car, passenger truck, single unit long-haul truck, single unit short-haul truck Ethanol (E-85): light commercial truck, passenger car, passenger truck Gasoline: combination short-haul truck, light commercial truck, passenger car, passenger truck, single unit long-haul truck, single unit-short-haul truck Electric vehicles
Road Types	Urban restricted (highway), urban unrestricted (surface streets) Rural restricted, rural unrestricted, and off-network inputs were excluded from MSAT runs. These roadways were included in criteria pollutant runs but have no VMT associated with them since MOVES3 requires their inclusion for criteria pollutant run.
Processes	MSAT: running exhaust, crankcase running exhaust, evaporative permeation, and evaporative fuel leaks. Criteria pollutants: running exhaust, crankcase running exhaust, brake wear, tire wear, start exhaust and crankcase start exhaust
Pollutants	MSAT: Acetaldehyde, acrolein, benzene, 1,3-butadiene, DPM as primary exhaust PM10, ethylbenzene, formaldehyde, naphthalene (gas and particulate), POM as 30 specific polycyclic aromatic hydrocarbons per FHWA guidance Criteria pollutants: CO, NOx, PM10, PM2.5, and VOC
Input Data Sets	Oregon Low Emitting Vehicles
Output	Units: grams, million Btu, miles Activity: distance traveled By: day, county, pollutant and road type

Notes: Btu = British thermal unit; DPM = diesel particulate matter; FHWA = Federal Highway Administration; MSAT = Mobile Source Air Toxics; MOVES = Mobile Vehicle Emission Simulator; PM10 = coarse particulate matter; POM = polycyclic organic matter

Table 2 MOVES3 County Data Manager Inputs

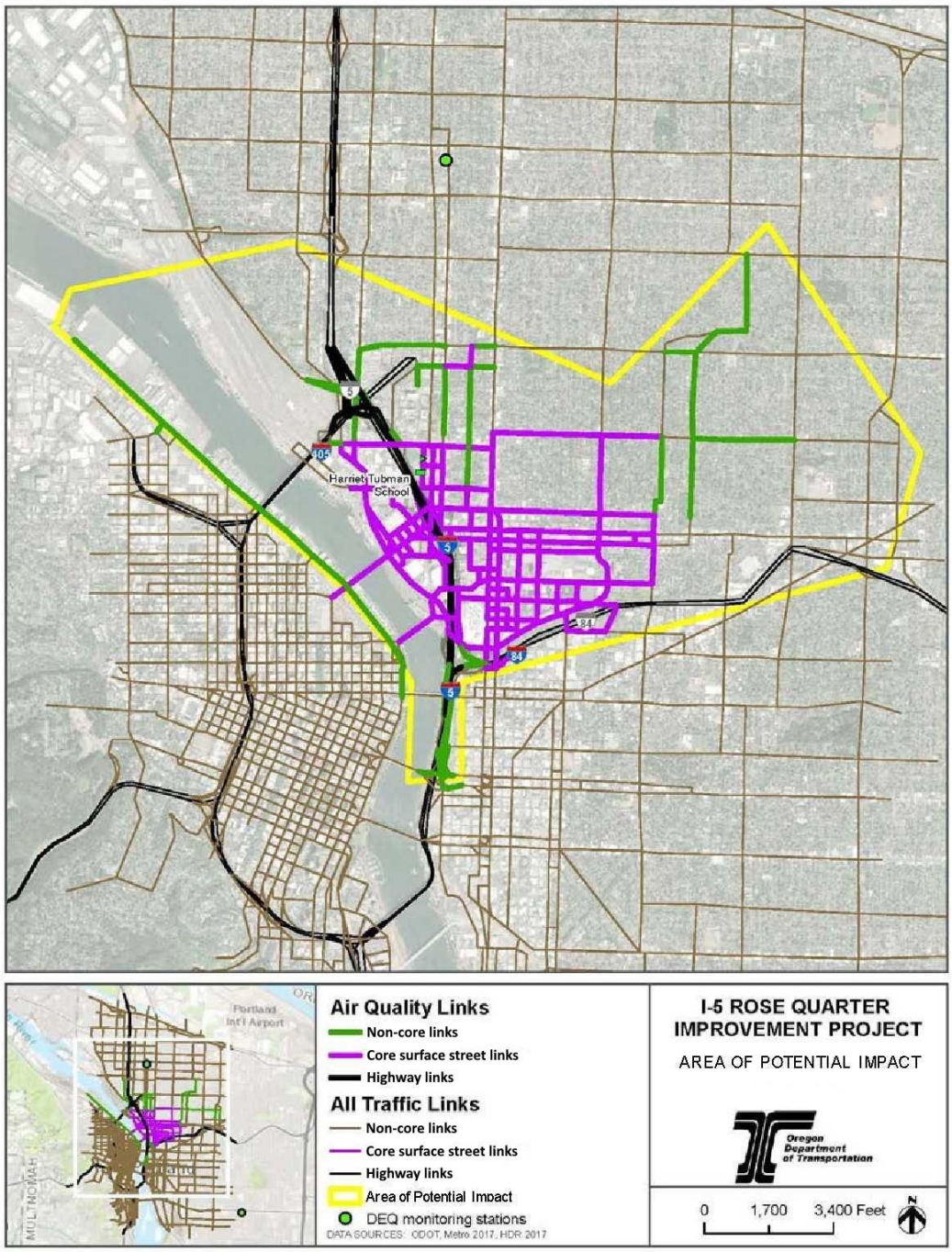
Input Database Type	Data Source	Zip File Folder	Source File Name
Vehicle Type VMT	Input files provided by Metro, except VMT file was developed for the project for each year and case analyzed	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	VMT.xls
I/M Program	MOVES3 default	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	IM_Prog_ Defaults.xls
Road Type Distribution	Input files provided by Metro	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	RdTypeDist .xls
Source Type Distribution	Input files provided by Metro	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	SrcTypeAgeD ist.xls
Average Speed Distribution	Developed for Project by year, road type and vehicle type for four daily periods for each case	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	AveSpdDist .xls
Fuel	MOVES3 Defaults adjusted for Biodiesel, existing 2017 Fuel Type 9 added, 2045 Fuel Types 3 and 9 added	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	Fuel.xls Fuel_ZEV.xls (for ZEV runs only)
Meteorological Data	MOVES3 default	2017 Rev 2045 NB Rev 2045 BD **Opt2-Way Ramsay** **2045 BD Opt2-Way Wheeler**	Met.xls

Notes: I/M = inspection and maintenance; HPMS = High Performance Monitoring System; YEAR = 2017 or 2045
All input data remain unchanged relative to what was used in the 2019 Air Quality Technical Report except for the HPMS and speed data that are specific to the Revised Build Alternative. Files provided by Metro were for MOVES2014a/b and were updated using MOVES3 conversion tool.

3.2 AREA OF POTENTIAL IMPACT

The API is the same as the API that was used in the 2019 Air Quality Technical Report and is shown here as Figure 7.

Figure 7 Area of Potential Impact



3.3 CRITERIA POLLUTANTS

While not included in the 2019 Air Quality Technical Report, this report includes the evaluation of transportation criteria pollutants to better understand the air quality impacts of the Revised Build Alternative.

4.0 AFFECTED ENVIRONMENT

The affected environment is unchanged and is consistent with the discussion in Section 5 of the 2019 Air Quality Technical Report. As noted above, this 202**3** Air Quality Supplemental Technical Report includes MSAT and criteria pollutants for 2017 to represent existing conditions. Tailpipe criteria pollutant and MSAT emissions from the MOVES3 model for 2017 are provided in Table 3 and Table 4, respectively. Table 4 also provides a comparison between the 2019 Air Quality Technical Report existing conditions MSAT analysis and the updated analysis using MOVES3.

Table 3 2017 Existing Conditions Criteria Pollutant Emissions (tons per year)

Pollutant	Emissions (TPY)
CO	3,416.20
NO_X	649.39
PM_{10}	75.80*
$PM_{2.5}$	22.47*
VOC	85.34

*Note: * includes brake wear and tire wear.*

Table 4 2017 Existing Conditions MSAT Emissions (tons per year)

Pollutant	Existing Conditions Using MOVES2014a (2019 Tech report)	Existing Conditions Using MOVES3	Percent Change Existing Conditions vs. Existing Conditions 2019 Tech Report
Diesel Particulate Matter (DPM)	12.85**8**	12.8**2**5	0%
Acetaldehyde	1.**393**	1.**521**	9%
Acrolein	0.**163**	0.1**81**	11%
Benzene	2.**722**	2.**816**	3%
1,3-Butadiene	0.29**4**	0.29**9**	2%
Ethylbenzene	1.**530**	1.**601**	5%
Formaldehyde	2.**534**	2.**637**	4%
Naphthalene	0.3**00**	0.3**12**	4%
Poly Organic Matter (POM)	0.14**5**	0.1**3**4	-8%

5.0 ENVIRONMENTAL CONSEQUENCES

This section discusses the air quality of the No-Build Alternative and the Revised Build Alternative.

5.1 NO-BUILD ALTERNATIVE

The MSAT emissions of the No-Build Alternative are updated from the emissions reported in the 2019 Air Quality Technical Report based on updated MOVES3 modeling. Additionally, transportation criteria pollutant emissions are calculated for the No-Build Alternative, which was not part of the analysis in the 2019 Air Quality Technical Report.

5.1.1 Direct Impacts

No-Build Alternative criteria pollutant and MSAT emissions in 2045 are summarized in Table 5 and Table 6, respectively. MSAT emissions are compared to the results presented in the 2019 Air Quality Technical Report to demonstrate how the updated model influences the results. MSAT emissions for the No-Build Alternative reported in the 2019 Air Quality Technical Report are greater than the MSAT emissions determined for this report, except for benzene and ethylbenzene. The changes can be attributed to the updated MOVES3 model and some of the data in the input database (i.e., fuels and IM program). Note that criteria pollutants were not evaluated in the 2019 Air Quality Technical Report.

Table 5 2045 Design Year No-Build **Alternative** Criteria Pollutant Emissions (tons per year)

Pollutant	No-Build Alternative 2045
CO	1,152.15
NO_X	279.22
PM_{10}	82.04
$PM_{2.5}$	13.12
VOC	11.82

Table 6 2045 Design Year No-Build Alternative MSAT Emissions (tons per year)

Pollutant	No-Build Alternative Using MOVES2014a (2019 Tech report)	No-Build Alternative using MOVES3	Percent Change No-Build Alternative vs. No-Build Alternative 2019 Tech Report
DPM	2.389	2.046	-14%
Acetaldehyde	0.381	0.275	-28%
Acrolein	0.052	0.024	-54%
Benzene	0.35	0.401	15%
1,3-Butadiene	0.004	0	**n/a***
Ethylbenzene	0.411	0.45	9%
Formaldehyde	1.145	0.256	-78%
Naphthalene	0.089	0.016	-82%
POM	0.019	0.007	-63%

*Note: *1,3-Butadiene was not calculated for the No-Build Alternative.*

5.1.2 Indirect Impacts

There would be no change to indirect impacts compared to the impacts that were documented in the 2019 Air Quality Technical Report.

5.2 REVISED BUILD ALTERNATIVE

Air quality analysis of the Revised Build Alternative **design options**, including a comparison to the analysis of the Build Alternative in the 2019 Air Quality Technical Report, are described in this section.

5.2.1 Direct and Indirect Impacts

The Revised Build Alternative **design options** criteria pollutant and MSAT emissions are summarized in Table 7 and Table 8, respectively.

Compared to the No-Build Alternative, emissions of criteria pollutants would be equal or less under the Revised Build Alternative **design options** for all pollutants because roadway speeds would be improved with the Project and vehicles stuck in traffic generally emit more pollution than vehicles running more efficiently at posted speeds (EPA 2014). PM_{10} and $PM_{2.5}$ emissions

decrease less than other criteria pollutants in the future since tire wear and brake wear would dominate these emissions even for more efficient vehicles.

Table 8 presents the MSAT emissions for Revised Build Alternative **design options** (2045) compared to the Existing Conditions (2017) and No-Build Alternative (2045). For MSAT under the Revised Build Alternative **design options**, total emissions would be the same or lower for all pollutants when compared to the No-Build Alternative. Table 9 summarizes the MSAT emissions by roadway type and accompanying VMT. **Emissions** of these MSAT pollutants are less relative to the No-Build Alternative since the Revised Build Alternative **design options add** an auxiliary lane to I-5 and vehicles would move more efficiently. Table 10 provides a summary of VMT by roadway type and vehicle type.

Compared to the Build Alternative in the 2019 Air Quality Technical Report, the Revised Build Alternative **design options** MSAT emissions would be lower for all pollutants except benzene and ethylbenzene which are slightly higher (Table 11). Benzene would have the greatest difference, with Revised Build Alternative emissions **9** percent higher than the Build Alternative. These differences can be attributed to the updated algorithms within MOVES3 compared to MOVES2014a, revised inputs to the input database (i.e., fuels and IM program), and updated traffic data for the Revised Build Alternative (2045).

The MSAT emissions reported in this document represent the latest approach to predicting MSAT emissions for roadway projects such as this one; however, MSAT analysis is an evolving topic. Appendix B provides additional information on MSAT emissions as an evolving topic. Appendix C provides more detail on the MSAT emissions for the Project. These documents are included in this report to provide context to the analysis of MSAT emissions.

The discussions and conclusions in Section 6.2 of the 2019 Air Quality Technical Report for construction related emissions, CO analysis, and the Harriet Tubman Middle School are unchanged for the Revised Build Alternative.

5.2.2 Indirect Impacts

There would be no change to indirect impacts compared to the impacts that were documented in the 2019 Air Quality Technical Report.

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Table 7 Comparison of Criteria Pollutant Emissions by Analysis Year/Alternative

	Emissions (tons per Year)				Percent Change (%)				
Pollutant	Existing 2017	No-Build Alternative 2045	Revised Build Alternative **2-Way Ramsay Design Option** 2045	**Revised Build Alternative 2-Way Wheeler Design Option 2045**	Existing 2017 to No-Build Alternative 2045	**Existing 2017 to Build Alternative 2-Way Ramsay Design Option 2045**	**No-Build Alternative 2045 to Build Alternative 2-Way Ramsay Design Option 2045**	Existing 2017 to Revised Build Alternative **2-Way Wheeler Design Option** 2045	No-Build Alternative 2045 to Revised Build Alternative **2-Way Wheeler Design Option** 2045
CO	3,416.20	1,152.15	**1,111.57**	**1,131.35**	-66%	**-67%**	**-4%**	**-67**%	**-2**%
NOX	649.39	279.22	**247.07**	**250.70**	-57%	**-62%**	**-12%**	-61%	**-10**%
PM10*	75.80	82.04	**73.09**	**75.35**	8%	**-4%**	**-11%**	**-1**%	**-8**%
PM2.5*	22.47	13.12	**11.87**	**12.18**	-42%	**-47%**	**-10%**	**-46**%	**-7**%
VOC	85.34	11.82	**10.98**	**11.16**	-86%	**-87%**	**-7%**	**-87**%	**-6**%

*Note: *includes tire wear and brake wear*

Table 8 Comparison of MSAT Emissions by Analysis Year/Condition using MOVES3

	Emissions (tons per Year)				Percent Change (%)				
Pollutant	Existing 2017	No-Build Alternative 2045	Revised Build Alternative **2-Way Ramsay Design Option** 2045	**Build Alternative 2-Way Wheeler Design Option 2045**	Existing 2017 vs. No-Build Alternative 2045	**Existing 2017 vs. Build Alternative 2-Way Ramsay Design Option 2045**	**No-Build Alternative 2045 vs. Build Alternative 2-Way Ramsay Design Option 2045**	Existing 2017 vs. Revised Build Alternative **2-Way Wheeler Design Option** 2045	No-Build Alternative 2045 vs. Revised Build Alternative **2-Way Wheeler Design Option** 2045
DPM	12.825	2.046	1**.910**	**1.922**	-84%	**-85%**	**-7%**	-85%	**-6**%
Acetal-dehyde	1.521	0.275	0.2**52**	**0.256**	-82%	**-83%**	**-8%**	-83%	**-7**%
Acrolein	0.181	0.024	0.02**2**	**0.023**	-87%	**-88%**	**-8%**	-87%	-4%
Benzene	2.816	0.401	0.**375**	**0.384**	-86%	**-87%**	**-6%**	-86%	**-4**%
1,3-Butadiene	0.299	0.000	0.000	**0.000**	-100%	**-100%**	**N/A**	-100%	N/A
Ethyl-benzene	1.601	0.450	0.**411**	**0.428**	-72%	**-74%**	**-9%**	**-73**%	**-5**%
Formal-dehyde	2.637	0.256	0.2**37**	**0.241**	-90%	**-91%**	**-7%**	-91%	**-6**%
Naph-thalene	0.312	0.016	0.01**5**	**0.015**	-95%	**-95%**	**-6%**	-95%	0%
POM	0.134	0.007	0.007	**0.007**	-95%	**-95%**	**0%**	-95%	0%

*Note: *1,3-Butadiene was not calculated for the No-Build Alternative.*

Table 9 Comparison of MSAT Emissions by Analysis Year/Condition/Road Type using MOVES3

Condition/ Alternative	Road Type*	VMT	Emissions (tons per Year)								
			DPM	Acetal-dehyde	Acro-lein	Ben-zene	1,3-Buta-diene	Ethyl-benzene	Formal-dehyde	Naph-thalene	POM
Existing 2017	Urban Unrestricted	114,458,250	4.128	0.754	0.081	1.762	0.179	0.996	1.247	0.155	0.065
	Urban Restricted	92,094,773	8.696	0.767	0.100	1.054	0.121	0.605	1.390	0.157	0.069
No-Build Alternative 2045	Urban Unrestricted	128,530,975	0.500	0.089	0.008	0.238	0.000	0.249	0.105	0.009	0.004
	Urban Restricted	95,261,267	1.546	0.186	0.016	0.163	0.000	0.202	0.151	0.008	0.003
Revised Build Alternative **2-Way Ramsay Design Option 2045**	Urban Unrestricted	**126,891,168**	0. **413**	0.07**9**	0.00**7**	0.**238**	0.000	0.240	0.**0**99	0.009	0.004
	Urban Restricted	101,**102,035**	1.49**7**	0.173	0.015	0.13**7**	0.000	0.17**1**	0.13**8**	0.007	0.003
Revised Build Alternative 2-Way Wheeler Design Option 2045	**Urban Unrestricted**	**126,590,714**	**0.425**	**0.084**	**0.008**	**0.247**	**0.000**	**0.257**	**0.103**	**0.009**	**0.004**
	Urban Restricted	**101,175,300**	**1.498**	**0.173**	**0.015**	**0.137**	**0.000**	**0.171**	**0.138**	**0.007**	**0.003**

*Note: *Urban Unrestricted are surface streets and Urban Restricted is the highway.*

Table 10 VMT Summary

Condition/ Alternative	Road Type	Total VMT	VMT by Vehicle Type		
			Passenger Vehicles	Medium Trucks	Heavy Trucks
Existing 2017	Urban Unrestricted	114,458,250	112,525,160	815,634	1,117,456
	Urban Restricted	92,094,773	84,374,618	1,988,474	5,731,681
No-Build Alternative 2045	Urban Unrestricted	128,530,975	125,041,465	1,505,567	1,983,943
	Urban Restricted	95,261,267	82,396,003	3,416,118	9,449,147
Revised Build Alternative **2-Way Ramsay Design Option 2045**	Urban Unrestricted	**126,891,168**	**123,656,325**	1,**379,999**	1,**854,844**
	Urban Restricted	101,**102,035**	87,**249,285**	3,**690,733**	10,**162,017**
Revised Build Alternative 2-Way Wheeler Design Option 2045	**Urban Unrestricted**	**126,590,714**	**123,332,055**	**1,408,043**	**1,850,616**
	Urban Restricted	**101,175,300**	**87,301,032**	**3,684,160**	**10,190,108**

Table 11 2045 Design Year Revised Build Alternative MSAT Emissions (tons per year) Compared to the Build Alternative

Pollutant	Revised-Build Alternative **2-Way Ramsay Design Option Using MOVES3**	**Revised Build Alternative 2-Way Wheeler Design Option Using MOVES3**	Build Alternative Using MOVES2014a (2019 Tech Report)	**Percent Change Build Alternative 2-Way Ramsay Design Option vs. Build Alternative 2019 Tech Report**	Percent Change Build Alternative **2-Way Wheeler Design Option** vs. Build Alternative 2019 Tech Report
DPM	1.**910**	**1.922**	2.304	**-17%**	**-17**%
Acetaldehyde	0.2**52**	**0.256**	0.360	**-30%**	**-29**%
Acrolein	0.02**2**	**0.023**	0.049	**-55%**	-53%
Benzene	0.**375**	**0.384**	0.351	**7%**	**9**%
1,3-Butadiene	0.000	**0.000**	0.004	**-100%**	-100%
Ethylbenzene	0.**411**	**0.428**	0.398	**3%**	**7**%
Formaldehyde	0.2**37**	**0.241**	1.077	**-78%**	**-78**%
Naphthalene	0.01**5**	**0.016**	0.084	**-82%**	-81%
POM	0.007	**0.007**	0.019	**-64%**	-64%

*Note: *1,3-Butadiene was not calculated for the No-Build Alternative.*

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5.3 CUMULATIVE EFFECTS

The discussions and conclusions in Section 6.3 of the 2019 Air Quality Technical Report for cumulative effects are unchanged for the Revised Build Alternative.

5.4 CONCLUSION

The 2045 MSAT emissions of the Revised Build Alternative **design options** would **be** the same or lower than the No-Build Alternative.

Overall, the results of the MSAT analysis are consistent with those reported in the 2019 Air Quality Technical Report and with national MSAT emission trends predicted by FHWA MSAT emissions would be lower under the Revised Build Alternative **design options** (2045) for all pollutants relative to the Existing Conditions (2017) and, therefore, would not cause an adverse effect on human health. **Less adverse effects can be attributed to the design options resulting in traffic moving more efficiently through the area as well as new federal fuel and engine regulations.**

As discussed above, technical shortcomings of emissions models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project at this time. While it is possible that localized increases in MSAT emissions may occur as a result of a project developed from this study, emissions would likely be lower than present levels in the design year of a project as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Although local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Transportation criteria pollutants, in 2045 under the Revised Build Alternative **design options** would be lower than the No-Build Alternative (see Table 7). This is because under the No-Build Alternative vehicles would experience more stop and go traffic than under the Revised Build Alternative **design options.**

6.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Avoidance, minimization, and mitigation measures would be the same as those described in the 2019 Air Quality Technical Report.

7.0 PREPARERS

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Appendix A Vehicle Miles Traveled

Table A-1

Build Alternative 2-Way Ramsay VMT Summary and HPMS Projection
I-5 Rose Quarter Improvement Project

HPMSVTypeID	Vehicle Type	Vehicle Type Description	Total Average Annual Vehicle Miles Traveled per Road Type (veh-miles/yr)			Annual Growth Rate [a] (%)	
			2015	2040 No Build	2040 Build	No Build	2040 Build
25	Auto	Passenger, truck, light commercial truck	196167899.5	205515221	208374594.5	0.19	0.24
50	Medium Truck	refuse truck, single unit short haul truck, long haul truck, motor home	2693663.5	4451284.5	4563339.5	2.03	2.13
60	Heavy Truck	Combination short haul truck, combination long haul truck	6602996	10433415.5	10875503.5	1.85	2.02

HPMSVTypeID	Vehicle Type	Vehicle Type Description	Projected Average Annual Vehicle Miles Traveled [1] (veh-miles/yr)		
			2017	2045 No Build	2045 Build
25	Auto	Passenger, truck, light commercial truck	$196,899,777.72	$207,437,467.88	$210,905,610.45
50	Medium Truck	refuse truck, single unit short haul truck, long haul truck, motor home	$2,804,107.78	$4,921,684.33	$5,070,732.12
60	Heavy Truck	Combination short haul truck, combination long haul truck	$6,849,137.29	$11,433,089.33	$12,016,861.07

HPMS = Highway Performance Monitoring System

Build Alternative 2-Way Wheeler VMT Summary and HPMS Projection
I-5 Rose Quarter Improvement Project

HPMSVTypeID	Vehicle Type	Vehicle Type Description	Total Average Annual Vehicle Miles Traveled per Road Type (veh-miles/yr)			Annual Growth Rate [a] (%)	
			2015	2040 No Build	2040 Build	No Build	2040 Build
25	Auto	Passenger, truck, light commercial truck	196167899.5	205515221	208150192.5	0.19	0.24
50	Medium Truck	refuse truck, single unit short haul truck, long haul truck, motor home	2693663.5	4451284.5	4579436	2.03	2.15
60	Heavy Truck	Combination short haul truck, combination long haul truck	6602996	10433415.5	10893498	1.85	2.02

HPMSVTypeID	Vehicle Type	Vehicle Type Description	Projected Average Annual Vehicle Miles Traveled [1] (veh-miles/yr)		
			2017	2045 No Build	2045 Build
25	Auto	Passenger, truck, light commercial truck	$196,899,777.72	$207,437,467.88	$210,633,086.58

HPMSVTypeID	Vehicle Type	Vehicle Type Description	Projected Average Annual Vehicle Miles Traveled [1] (veh-miles/yr)		
			2017	2045 No Build	2045 Build
50	Medium Truck	refuse truck, single unit short haul truck, long haul truck, motor home	$2,804,107.78	$4,921,684.33	$5,092,203.19
60	Heavy Truck	Combination short haul truck, combination long haul truck	$6,849,137.29	$11,433,089.33	$12,040,724.59

HPMS = Highway Performance Monitoring System

Notes:

(a) Annual growth rate (%) = ([{2040 scenario vehicle miles traveled (veh-miles/yr)} / {2015 vehicle miles traveled (veh-miles/yr)}]^[1 / {number of years between start and end value (yr)}] - 1) x (100)

Number of years between start and end value (yr) = 25

References:

(1) Value represents future value based on annual growth rate. 2017 value assumes No Build annual growth rate.

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Table A-2

Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary
I-5 Rose Quarter Improvement Project

Roadtype [1]	Area ID [2]	Auto			Medium Truck			Heavy Truck		
		2015	2040 No Build	2040 Build	2015	2040 No Build	2040 Build	2015	2040 No Build	2040 Build
Average Annual Vehicle Miles Traveled (veh-miles/yr) [3]										
5	1 & 2	112106903	123882752	122172362	783509	1361669	1241912.5	1077297.5	1810473	1678671.5
4	3	84060996.5	81632469	86202232.5	1910154.5	3089615.5	3321427	5525698.5	8622942.5	9196832
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
RoadType Distribution [a]										
5	1 & 2	0.57148	0.60279	0.58631	0.29087	0.30590	0.27215	0.16315	0.17353	0.15435
4	3	0.42852	0.39721	0.41369	0.70913	0.69410	0.72785	0.83685	0.82647	0.84565
Total		**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
10408.10410	3	1608372.5	1526174.5	1627608	38252	64203.5	68328	106726	179324.5	192574
10408.15686	3	1267754.5	1233335	1419302.5	24163	39894.5	36974.5	45734.5	69532.5	68948.5
10409.10408	3	6514848.5	5211214.5	5674399.5	146803	205787	212904.5	380257	528410.5	560822.5
10410.15685	1	1040104	1243117	1276697	31353.5	67707.5	72635	67196.5	133736	141036
10467.16189	2	375512	448366	278276	7190.5	15403	9891.5	4161	13979.5	2007.5
10468.14368	2	573670.5	782560	836507	5986	10074	10804	4818	5037	5840
10469.10470	3	7813883.5	6675302.5	6732388.5	193559.5	242871	277911	539214.5	630501	697843.5
10470.15748	3	4231846.5	3444322.5	3505861.5	123844.5	148445.5	170710.5	366788.5	411610.5	461725
10471.10472	3	9188291	5395466.5	5922015.5	202356	189690.5	207794.5	558085	498298	541112.5
10472.10468	3	1047148.5	917938.5	1007363.5	22922	32339	35368.5	63473.5	84789.5	92089.5
10728.10729	2	469536	376059.5	393835	620.5	620.5	620.5	1022	1095	766.5
10728.10791	2	47085	58874.5	59677.5	0	0	0	0	0	0
10791.10728	2	35587.5	38215.5	42960.5	0	0	0	0	0	0
10729.10789	2	24856.5	16717	17593	0	0	0	0	0	0
10789.10729	2	58144.5	52304.5	53837.5	0	0	0	0	0	0
10729.31668	2	294482	244440.5	255208	474.5	474.5	474.5	474.5	547.5	620.5
10731.10733	2	326018	382739	350801.5	73	401.5	401.5	73	401.5	401.5
10733.10731	2	532571.5	596957.5	583927	474.5	474.5	547.5	474.5	620.5	620.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
10731.14376	2	658131.5	737190.5	721532	474.5	547.5	547.5	474.5	620.5	693.5
14376.10731	2	402850.5	473003.5	433474	73	401.5	401.5	146	401.5	474.5
10734.10741	2	105229.5	122786	120450	0	0	0	73	0	0
10741.10734	2	167389	184544	178886.5	401.5	401.5	401.5	1204.5	401.5	401.5
31668.10734	2	824571.5	683353	715400	1022	1095	1095	2226.5	2044	2044
10736.10737	2	724050.5	667767.5	646488	2226.5	1825	1825	3431	2372.5	2372.5
10736.10738	2	28287.5	30331.5	30879	0	0	0	0	0	0
10738.10736	2	60444	82088.5	65700	328.5	401.5	401.5	0	0	0
10737.10993	2	4015	13030.5	10512	0	0	0	0	0	0
10993.10737	2	54640.5	35989	33908.5	401.5	401.5	401.5	0	0	0
10737.10992	2	852457.5	761134.5	737628.5	2701	3029.5	2628	3431	2372.5	2372.5
10738.10739	2	69788	72014.5	66831.5	0	401.5	401.5	0	0	0
10739.10738	2	89315.5	109828.5	92308.5	328.5	401.5	401.5	0	0	0
10740.10789	2	618748	644553.5	659810.5	803	1277.5	803	1277.5	1277.5	803
10741.10740	2	416355.5	433912	444059	474.5	803	803	803	803	474.5
10741.10781	2	90812	107091	104499.5	0	0	0	73	0	0
10781.10741	2	153920.5	189690.5	187902	0	401.5	401.5	328.5	73	73
10770.14399	1	67707.5	58473	64386	0	0	0	328.5	0	328.5
10770.16316	1	341457.5	271560	277071.5	547.5	620.5	620.5	1095	1241	1715.5
10773.10985	1	66320.5	69897.5	67488.5	0	73	0	73	73	401.5
10985.10773	1	21352.5	39383.5	42559	0	0	0	0	0	0
10777.10778	1	85811.5	1496.5	0	0	0	0	0	0	0
14400.10778	1	241009.5	217722.5	224475	401.5	474.5	474.5	474.5	876	876
10781.10793	2	347297.5	235717	228672.5	401.5	401.5	73	876	73	73
10793.10781	2	529834	380330	381206	803	474.5	547.5	1204.5	1022	1022
10782.10783	2	317659.5	367080.5	404456.5	1277.5	1752	2226.5	0	0	0
10783.10782	2	640502	712407	715655.5	2080.5	4964	5110	146	73	73
10783.11003	2	41719.5	54129.5	60772.5	0	73	0	0	0	0
11003.10783	2	97053.5	83220	85629	0	328.5	328.5	0	0	0
10783.29052	2	48946.5	58911	64495.5	0	401.5	401.5	0	0	0
29052.10783	2	81030	98878.5	100995.5	0	474.5	474.5	0	0	0
10784.11004	2	114427.5	165418	172024.5	401.5	1277.5	1350.5	0	0	0
11004.10784	2	156475.5	140050.5	182536.5	803	803	1277.5	0	0	0
10784.27630	2	414895.5	387849	375585	1277.5	2153.5	1679	1825	2153.5	1752
10785.10794	2	229329.5	252872	260391	0	401.5	401.5	0	0	0
10794.10785	2	116763.5	212941	220314	0	474.5	474.5	0	0	0
10785.11053	2	108806.5	174251	183704.5	328.5	474.5	474.5	0	0	0
11053.10785	2	258456.5	323463	316272.5	474.5	1204.5	1204.5	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
10785.29052	2	121800.5	148518.5	151219.5	401.5	876	876	0	0	0
29052.10785	2	73584	88001.5	96542.5	328.5	401.5	474.5	0	0	0
10789.10791	2	534250.5	513226.5	525563.5	803	1131.5	803	803	1131.5	803
10791.10792	2	244258	215277	214474	401.5	730	401.5	803	1131.5	474.5
10792.10791	2	211919	225497	225935	328.5	401.5	401.5	401.5	474.5	474.5
10792.10793	2	--	403799.5	408106.5	--	401.5	401.5	--	73	73
10793.10792	2	--	812855	799934	--	803	474.5	--	401.5	401.5
10793.10794	2	58181	84242	84570.5	0	0	0	0	0	0
10794.10793	2	114500.5	145379.5	148336	0	0	0	0	0	0
10793.11054	2	99864	109062	105047	73	0	0	401.5	0	0
11054.10793	2	308242.5	270903	258347	474.5	401.5	401.5	474.5	547.5	474.5
10795.11016	2	121581.5	122603.5	146328.5	73	73	73	0	73	73
11016.10795	2	733540.5	813329.5	816724	2628	3504	3723	3905.5	3321.5	4161
10795.11020	2	601629.5	568159	562392	2153.5	2628	2847	3029.5	2372.5	3139
10801.15729	3	4109717.5	3551778.5	3559918	71832	132495	121508.5	220533	394711	356495.5
10985.31267	1	60225	76540.5	70554.5	0	73	73	73	474.5	401.5
10987.14371	2	339742	347662.5	179689.5	5621	6643	3358	2482	1277.5	401.5
14371.10987	2	--	--	0	--	--	0	--	--	0
10988.10989	2	34018	75226.5	60991.5	0	803	803	0	328.5	0
10989.10988	2	31937.5	32667.5	31171	0	0	0	0	0	0
10988.17270	2	483953.5	486837	513810.5	1350.5	2628	2956.5	1825	2153.5	1423.5
10989.10990	2	479208.5	453184	448256.5	1752	2555	2153.5	2226.5	2153.5	1825
10990.10992	2	535747	486216.5	494684.5	2153.5	2555	2482	2701	2226.5	2226.5
10990.10993	2	691492.5	677038.5	671892	2482	2883.5	2482	2153.5	2080.5	1606
10991.10988	2	405405.5	448147	458111.5	1350.5	3029.5	2628	1423.5	2080.5	1022
10991.10990	2	405916.5	375366	385841.5	1277.5	1679	1606	2007.5	1277.5	1277.5
10992.10995	2	594731	502459	507350	2555	2956.5	2628	2226.5	1898	1825
10993.10738	2	607944	608345.5	605024	1277.5	2080.5	1679	2153.5	2080.5	1606
10994.31975	2	524468.5	539579.5	541441	1350.5	1679	1679	2701	2628	2628
31975.10994	2	549215.5	515197.5	539543	1277.5	1350.5	1350.5	2299.5	2299.5	2299.5
10995.10991	2	313936.5	304483	328317.5	547.5	876	876	1022	1022	1022
10996.14398	2	159906.5	204035	211554	1752	3540.5	2555	2555	5146.5	3504
14398.10996	2	157935.5	183230	201261	1095	2117	1898	2044	2883.5	3394.5
10996.17039	2	184945.5	183230	201261	1423.5	2117	1898	2372.5	2883.5	3394.5
17039.10996	2	199363	204035	211554	1752	3540.5	2555	3029.5	5146.5	3504
10997.11002	2	62816.5	155307.5	186697.5	620.5	3175.5	2701	1350.5	4416.5	4927.5
11002.10997	2	126655	109135	124611	1679	1825	1825	3358	1642.5	1898
10997.17039	2	186515	589110	577138	2883.5	9636	10220	4964	10694.5	11935.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
17039.10997	2	196151	544105.5	653423	2299.5	10220	8979	4708.5	15804.5	16607.5
10998.10997	2	--	185237.5	126290	--	2737.5	2737.5	--	4088	4818
10998.10999	2	33470.5	17483.5	17009	401.5	73	73	876	73	474.5
10999.10998	2	19308.5	19965.5	14454	401.5	328.5	328.5	803	401.5	328.5
10999.11000	2	46501	8906	10074	401.5	0	0	1679	0	0
11000.10999	2	55297.5	47997.5	33726	876	730	474.5	2336	803	803
10999.11001	2	64386	50443	47705.5	803	547.5	547.5	1277.5	1095	1168
11000.11001	2	261303.5	364124	361131	1423.5	5438.5	2482	876	5073.5	1752
11001.11000	2	317440.5	450373.5	445847.5	2336	5037	3504	803	3285	4015
11001.12080	2	2112656.5	2484445.5	2453712.5	12300.5	37631.5	17812	11096	36317.5	15768
12080.11001	2	2223616.5	2790425	2762429.5	15038	31755	22630	5621	20695.5	24637.5
11002.16171	2	376899	365255.5	438693.5	4088	6643	5876.5	7300	10512	11205.5
16171.11002	2	495852.5	256595	292584	6168.5	3869	4854.5	8504.5	4234	4343.5
11003.11011	2	1387	10767.5	4781.5	0	0	0	0	0	0
11004.11005	2	393470	459973	416684	1350.5	2153.5	1350.5	1423.5	2153.5	1022
11005.11006	2	39237.5	19089.5	18688	0	0	0	0	0	0
11006.11005	2	24345.5	13505	14636.5	0	0	0	0	0	0
11005.11008	2	386352.5	463586.5	421027.5	1204.5	2153.5	1350.5	1496.5	2153.5	1022
11006.10784	2	323791.5	333391	316674	949	1350.5	949	1423.5	2153.5	1752
11007.11006	2	314338	328098.5	312987.5	949	1277.5	1277.5	1423.5	1825	1679
11008.11007	2	15731.5	54713.5	26535.5	0	803	474.5	0	0	0
11009.16182	2	185967.5	150270.5	107602	3212	2883.5	2482	1204.5	474.5	0
11010.11003	2	108259	143372	139138	474.5	1277.5	1277.5	0	0	0
11011.11012	2	54239	116544.5	118296.5	0	474.5	474.5	0	0	0
11012.11011	2	36536.5	45004.5	44055.5	0	0	0	0	0	0
11011.11053	2	64897	90410.5	87709.5	0	401.5	401.5	0	0	0
11053.11011	2	27119.5	59276	60553.5	0	328.5	328.5	0	0	0
11012.11013	2	273786.5	374855	375658	1131.5	2007.5	2080.5	2007.5	1679	1679
11013.11012	2	132933	171367.5	171623	0	401.5	401.5	0	73	73
11012.11017	2	--	29638	31134.5	--	0	0	--	0	0
11017.11012	2	171659.5	158702	154285.5	803	803	803	1606	1204.5	1277.5
11013.14909	2	150927.5	189946	187464	474.5	803	803	474.5	876	803
14909.11013	2	98915	99426	96141	0	73	73	0	73	73
11014.11015	2	20294	21243	21425.5	0	0	0	0	0	0
11015.11014	2	34784.5	38982	36865	0	0	0	0	0	0
11016.14909	2	117420.5	118552	114427.5	0	73	73	0	73	73
14909.11016	2	179580	226044.5	222869	474.5	803	803	803	876	1204.5
11018.11017	2	986850.5	1011378.5	984916	4088	5037	5365.5	5292.5	4562.5	5365.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
11536.10552	3	1054047	1016014	965753.5	10037.5	21206.5	21024	24528	52122	52158.5
11589.15848	1	405077	564691.5	546186	4015	9453.5	9052	5913	14855.5	13395.5
31695.11589	1	364160.5	537024.5	525965	3723	8504.5	8103	5292.5	13359	12446.5
11590.31695	1	450775	582686	578853.5	3029.5	8504.5	8103	4635.5	13505	12446.5
27001.11599	1	89680.5	91834	94097	693.5	1168	1350.5	985.5	1788.5	1825
11599.32136	1	225606.5	360656.5	359269.5	1715.5	5438.5	5402	2555	8723.5	7920.5
12085.12087	1	417815.5	790517	805883.5	8103	24564.5	23652	11315	39785	38617
15844.12085	1	116836.5	142131	138992	1861.5	3759.5	3321.5	3212	5949.5	5694
12085.15862	1	31718.5	35916	32521.5	401.5	474.5	328.5	474.5	1277.5	1204.5
14361.50017	2	130268.5	158775	165600.5	0	328.5	328.5	401.5	401.5	401.5
50017.14361	2	117347.5	83548.5	66101.5	0	73	0	401.5	474.5	73
14363.10987	2	412048.5	484720	215751.5	6168.5	10913.5	3759.5	2153.5	4891	474.5
14363.14369	2	147715.5	136327.5	187537	474.5	474.5	803	1204.5	1204.5	1606
14364.14363	2	405296	386827	409603	3066	5037	4964	2482	2482	2883.5
14364.14365	2	392484.5	407157.5	391864	4416.5	6825.5	5037	2153.5	5365.5	2956.5
14365.10409	2	1138982.5	1105402.5	1142486.5	15330	24272.5	17118.5	7482.5	17629.5	10293
14365.16187	2	518336.5	705326	506364.5	839.5	766.5	474.5	401.5	949	474.5
14364.14366	2	--	--	0	--	--	0	--	--	0
14366.14364	2	112602.5	126253.5	120523	3613.5	6278	4088	474.5	4343.5	1934.5
14366.14368	2	301417	311491	175200	1277.5	2263	328.5	1277.5	1679	0
14367.17020	2	59787	27813	71686	474.5	401.5	474.5	401.5	73	803
17020.14367	2	30733	95995	109974.5	4818	12045	13286	0	0	0
14368.16185	2	123589	192939	227395	2591.5	3686.5	3759.5	2007.5	2409	2482
14370.14363	2	105302.5	161220.5	--	3029.5	5475	--	876	3212	--
14370.14369	2	81760	71649.5	0	803	2591.5	0	1204.5	3723	0
14367.14371	2	--	--	--	--	--	--	--	--	--
14371.14367	2	491655	470302.5	169506	2080.5	2153.5	401.5	2883.5	1350.5	474.5
14372.14373	2	820228	862349	826542.5	3832.5	7336.5	10074	547.5	1606	73
14373.14372	2	587577	644553.5	676746.5	6460.5	5803.5	6132	1642.5	2080.5	547.5
14372.14487	2	200567.5	221117	231921	2372.5	1825	2153.5	547.5	803	73
14374.14375	2	6132	23688.5	17994.5	0	0	0	0	0	0
14375.14374	2	27813	67160	63437	0	401.5	401.5	0	0	0
14376.27696	2	413618	535272.5	532973	73	401.5	401.5	401.5	474.5	474.5
27696.14376	2	338537.5	430043	395988.5	328.5	474.5	73	73	693.5	401.5
14376.31257	2	623675.5	691894	723174.5	474.5	949	803	876	1496.5	949
31257.14376	2	423619	556442.5	590168.5	146	474.5	401.5	620.5	949	1022
14383.27515	1	144503.5	184580.5	167060.5	0	73	0	0	146	0
27515.14383	1	147569.5	261267	257945.5	0	328.5	328.5	0	328.5	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
14384.27697	1	157461	230388	227139.5	0	328.5	0	0	328.5	0
27697.14384	1	154285.5	162717	147131.5	0	73	0	0	146	0
14384.31661	1	65846	54786.5	38544	0	0	0	0	0	0
31661.14384	1	35952.5	35770	31536	0	0	0	0	0	0
14384.31671	1	214364.5	227358.5	222905.5	0	0	0	0	0	0
31671.14384	1	327952.5	389674	325142	0	73	0	0	0	0
14386.14385	1	82526.5	77854.5	84351.5	0	0	0	0	0	0
31278.14385	1	231227.5	273896	275173.5	0	474.5	401.5	474.5	547.5	474.5
14385.31661	1	60444	72744.5	64605	0	0	0	0	0	0
31661.14385	1	110887	111726.5	78438.5	0	73	0	0	73	0
14386.14387	1	54932.5	63692.5	53983.5	0	0	0	0	0	0
14387.14386	1	46610.5	47340.5	41683	0	0	0	0	0	0
14387.14848	1	80446	159176.5	135086.5	0	73	73	0	0	0
14848.14387	1	68072.5	118077.5	103806	0	0	0	0	0	0
14388.31257	2	116435	172681.5	182317.5	0	401.5	401.5	146	474.5	474.5
31257.14388	2	199107.5	210349.5	228088.5	0	401.5	328.5	401.5	547.5	474.5
14388.50018	2	630099.5	600352	630318.5	1423.5	1423.5	1752	2299.5	2299.5	2372.5
50018.14388	2	552610	567830.5	575057.5	1350.5	1752	1752	1825	2226.5	2226.5
14389.27689	1	652401	353174	327259	547.5	401.5	0	803	401.5	401.5
14395.14396	3	276305	341530.5	338464.5	3577	8176	7701.5	8212.5	15111	12884.5
14395.15730	3	2226098.5	3358109.5	3336793.5	40369	77854.5	71832	131509.5	237943.5	218379.5
14396.10466	3	458841.5	588051.5	569911	10110.5	21498.5	20075	22265	38836	33215
14397.14398	2	196698.5	165965.5	188121	1496.5	2664.5	2117	2701	3504	3613.5
14398.14397	2	167316	211700	221847	2153.5	4343.5	3029.5	3102.5	6351	3978.5
14397.50015	2	87600	111069.5	116143	949	2336	1679	1752	3139	1825
50015.14397	2	103149	86979.5	98696	949	1496.5	1022	1752	1788.5	2044
14398.50016	2	101944.5	67853.5	67196.5	328.5	328.5	328.5	474.5	876	876
50016.14398	2	65736.5	87673	89826.5	73	401.5	401.5	219	876	1277.5
31267.14399	1	111945.5	142496	131144.5	0	401.5	401.5	401.5	547.5	474.5
14404.14405	2	875635	979623.5	971812.5	5183	6935	6862	4672	5694	5219.5
14404.15492	2	992909.5	972944	1000976	6460.5	8212.5	7154	10548.5	12519.5	13906.5
14405.14406	2	224548	246302	247178	2080.5	2956.5	3358	1350.5	1496.5	1496.5
14406.14405	2	10877	20002	15622	0	0	0	0	0	0
14406.14407	2	164834	206626.5	203925.5	2628	3905.5	3905.5	1095	2044	2044
14407.14406	2	308060	284262	329339.5	4927.5	5949.5	4380	3905.5	4088	4854.5
14406.15494	2	1528145.5	1645055	1690607	9782	13614.5	12154.5	9307.5	10950	9855
14407.14410	2	86797	119136	117749	1277.5	1752	1752	547.5	1022	1022
14410.14407	2	163848.5	160417.5	185055	2372.5	3175.5	2482	2153.5	1971	2555

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
14408.10471	1	383980	469572.5	565750	5840	10877	11826	15585.5	24528	25951.5
14408.16192	2	177025	139028.5	82453.5	3686.5	3285	2810.5	1277.5	803	0
14409.11009	2	154577.5	159432	149796	803	1423.5	1679	0	0	0
14409.16191	2	23798	69423	82453.5	219	949	803	73	474.5	730
16191.14409	2	73	876	474.5	0	0	0	0	0	0
14410.16191	2	0	401.5	0	0	0	0	0	0	0
16191.14410	2	7227	20987.5	24820	0	401.5	401.5	0	0	0
14441.17255	1	102346	45661.5	40405.5	474.5	0	0	949	401.5	401.5
14446.15500	1	1097409	838222.5	901988	15549	20622.5	20987.5	38288.5	45369.5	45369.5
15503.14448	1	135670.5	145197	145781	474.5	949	876	620.5	1095	1022
14486.15995	1	173046.5	234038	214620	4781.5	10840.5	7409.5	7008	15038	9672.5
14487.14409	2	90374	116106.5	118223.5	474.5	1350.5	1204.5	73	401.5	401.5
14487.14490	2	199399.5	250463	274407	3869	3978.5	4051.5	1496.5	2044	1715.5
14490.14487	2	232979.5	198268	247762	4124.5	4818	3504	3504	3540.5	4380
14488.16182	2	49640	116252.5	157351.5	474.5	474.5	803	0	73	0
16182.14488	2	279042.5	293898	271304.5	4015	4964	4964	1277.5	876	0
14488.17018	2	110412.5	109244.5	106835.5	1277.5	1679	1679	474.5	401.5	328.5
17018.14488	2	2847	28689	36171.5	0	0	0	0	0	0
17020.14488	2	103149	70700.5	131400	474.5	474.5	1204.5	474.5	73	1131.5
14490.14491	2	87125.5	109427	119866	1898	1752	1752	620.5	1022	620.5
14491.14490	2	101616	86505	108332	1752	2299.5	1679	1350.5	1496.5	1825
14491.17017	2	189800	232249.5	232906.5	6205	5584.5	5183	2299.5	1971	1569.5
17017.14491	2	176660	241265	279115.5	3321.5	4197.5	3723	2226.5	2993	2701
14491.17018	2	7555.5	73693.5	93513	0	328.5	401.5	0	0	0
17018.14491	2	284590.5	282400.5	276232	4015	4635.5	4891	1277.5	876	401.5
14491.17024	2	77781.5	82198	78730.5	401.5	803	949	0	0	0
14492.15489	2	94097	155307.5	186697.5	1022	3175.5	2701	1825	4416.5	4927.5
15489.14492	2	123844.5	109135	124611	1679	1825	1825	2226.5	1642.5	1898
14492.16171	2	76613.5	98258	112201	876	1496.5	1752	1350.5	1569.5	1569.5
16171.14492	2	58217.5	139722	168228.5	620.5	2372.5	2628	1277.5	3942	4051.5
15489.15490	2	257653.5	227030	256230	4708.5	4526	2518.5	3504	2518.5	2701
15490.15489	2	231592.5	174433.5	177572.5	2883.5	2847	2555	3248.5	1971	1496.5
15489.15796	2	55516.5	91688	100849.5	803	1569.5	2007.5	401.5	2299.5	2628
15796.15489	2	107054.5	93987.5	112383.5	2336	2226.5	1569.5	730	0	803
15490.17017	2	171404	233928.5	271049	3248.5	4124.5	3577	2226.5	2518.5	2701
17017.15490	2	184288.5	225314.5	226117.5	6132	5511.5	5183	2299.5	1971	1496.5
15491.15744	1	1057441.5	853662	924326	18031	19929	20878	33178.5	35952.5	37522
15491.15745	1	2631139	2605297	2487073.5	24637.5	51209.5	50917.5	55151.5	118406	118296.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
15494.14404	2	164067.5	158373.5	165162.5	1022	1350.5	803	876	876	1277.5
15496.14446	1	864721.5	766646	824608	13468.5	20476.5	20586	35879.5	49238.5	48983
15496.15503	1	1036782.5	1072370	1076823	4745	7519	7409.5	5803.5	10329.5	8979
15500.16190	3	4895270.5	6362534	6679171.5	118844	256412.5	281707	333391	702661.5	766646
15501.15757	1	1071348	997362.5	980901	17118.5	25185	25185	46939	62050	60955
15685.15995	1	1323855	1582421	1624505.5	39931	86724	92089.5	85702	170272.5	179835.5
15686.15687	3	563268	548266.5	631085	10913.5	17739	16169.5	20257.5	30879	30842.5
15687.15688	3	704085	685397	788546	13322.5	22155.5	20330.5	25221.5	38398	38507.5
15688.15689	3	352079	342735	394273	6825.5	10913.5	10001	12410	19126	19345
15689.15485	3	492896	479464	552062.5	9307.5	15658.5	14490.5	17702.5	27119.5	27010
15729.15484	3	2054658	2007463.5	2011989.5	35916	75044	68766	110303	223015	201224.5
15730.14392	3	3895864	2880981.5	2862622	70299	66831.5	61612	230643.5	204290.5	187573.5
15744.14408	1	853808	938853	1016890	14746	22082.5	22630	26864	39785	41354.5
15745.15746	3	1445108	1463869	1397694.5	13724	28725.5	28616	30149	66758.5	66539.5
15746.11536	3	3191998	3057203.5	2918868.5	29930	59933	59312.5	66868	138955.5	138992
15747.11537	1	1044484	948452.5	979733	16790	22849	23579	39310.5	49311.5	49092.5
15748.10552	3	2996832.5	2987707.5	3018477	108952.5	156694.5	185274	337661.5	458951	524286
15748.15747	1	531513	850778.5	879540.5	8431.5	20440	21170	19892.5	44420.5	44128.5
15754.14446	1	166549.5	143007	154577.5	1277.5	1423.5	2080.5	0	0	0
15754.15612	1	494100.5	509686	522096	5037	4781.5	4927.5	3723	985.5	1460
15757.15497	1	561297	534980.5	526330	9234.5	13797	13468.5	24710.5	33142	32923
11000.15796	2	73036.5	92235.5	113478.5	1277.5	2226.5	1423.5	401.5	474.5	401.5
15796.11000	2	36098.5	84132.5	83037.5	146	1752	1606	0	1350.5	1679
15848.15843	1	265136	428875	418253.5	3394.5	8176	8103	5219.5	13359	12775
15843.27007	1	210678	315725	307330	2847	7701.5	7300	4672	12410	11899
27007.15844	1	198377.5	278714	270501.5	2847	6898.5	6497	4343.5	11132.5	10694.5
15995.15487	1	1106388	1187819.5	1193586.5	42449.5	84351.5	85884.5	85884.5	165235.5	165454.5
16182.17016	2	155818.5	212612.5	251156.5	803	949	1204.5	0	73	0
17016.16182	2	133480.5	157899	184872.5	474.5	1350.5	1752	0	0	0
16185.14364	2	751827	738066.5	747666	4818	7117.5	6789	4635.5	4380	4380
16189.14370	2	429021	512825	318207	8066.5	17666	11497.5	5037	16315.5	2409
16190.10471	3	1516502	2911459	3056035.5	36792	117603	128845	103112.5	321528.5	350692
16192.11009	2	402777.5	316272.5	187792.5	8358.5	7373	6095.5	3285	1679	0
16316.50016	1	54494.5	43508	44347.5	0	73	73	73	73	73
17024.14372	2	287839	304045	290905	1350.5	2555	3650	73	474.5	0
27515.27697	1	211773	213379	192720	0	401.5	0	73	146	0
27697.27515	1	216518	302037.5	298095.5	0	328.5	328.5	0	328.5	0
27689.10777	1	549325	297438.5	275648	474.5	0	0	474.5	401.5	328.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
31975.50018	2	1175701.5	1324256.5	1358749	2774	4307	4234	4599	5803.5	5402
50018.31975	2	1571799.5	1449488	1537891	3248.5	3577	4051.5	5219.5	5803.5	5219.5
50015.50016	2	3686.5	60991.5	78219.5	73	438	620.5	547.5	1058.5	1168
50016.50015	2	59860	79716	74277.5	474.5	1533	1277.5	1168	2993	3029.5
10733.10734	2	269479.5	298789	277692	803	474.5	474.5	2080.5	1277.5	1277.5
10734.10733	2	375110.5	410479	392375	803	401.5	474.5	1679	1277.5	547.5
11783.65102	1	113916.5	207466	244951.5	1314	2445.5	2299.5	766.5	2737.5	2628
14361.16188	2	447380.5	61685	36646	474.5	547.5	292	474.5	73	0
27690.18548	1	199290	236739	235023.5	949	2628	2226.5	1642.5	4453	4380
65102.27001	1	103587	129976.5	143773.5	1314	1496.5	1423.5	912.5	1788.5	1752
15925.11590	1	521767.5	539397	536367.5	3577	7884	7628.5	5402	12410	11497.5
32136.15925	1	271815.5	493480	491582	1861.5	7482.5	7154	2774	11862.5	11023
22003.50016	2	66028.5	106689.5	96177.5	474.5	1861.5	1606	1095	3175.5	3029.5
50016.22003	2	41719.5	69532.5	78511.5	0	766.5	620.5	474.5	1058.5	1569.5
18548.22003	2	237396	318499	280247	1569.5	5110	4708.5	3285	9928	9088.5
22003.18548	2	202356	220022	239622.5	876	2299.5	1861.5	1825	4161	3650
10986.14493	2	229293	216153	212393.5	1606	2664.5	474.5	2409	2993	474.5
14493.10986	2	228964.5	222029.5	194654.5	1204.5	1204.5	1204.5	1679	1533	1533
11000.14493	2	297073.5	309520	288058	1204.5	2409	2007.5	1679	2336	2810.5
14493.11000	2	287766	280940.5	269370	1752	3613.5	803	3139	3723	474.5
14368.16183	2	864867.5	977433.5	915310.5	3759.5	7701.5	6168.5	3358	4161	2956.5
16183.10991	2	1084123	1130952.5	1125039.5	4964	8322	7519	4562.5	4234	3029.5
10995.16184	2	1309109	1076348.5	1091970.5	5183	6314.5	5584.5	5657.5	4526	4124.5
16184.16185	2	1300641	1132485.5	1082517	5511.5	7190.5	5730.5	5657.5	4927.5	4526
10734.31666	2	918230.5	754966	774639.5	2226.5	1569.5	1642.5	4380	3321.5	3394.5
31666.10736	2	924216.5	789495	807270.5	1898	1569.5	1569.5	4380	3321.5	3394.5
10738.10732	2	805518.5	801868.5	807818	1277.5	1606	1204.5	2956.5	2409	2080.5
10732.10741	2	853333.5	828513.5	835594.5	1679	1606	1277.5	3358	2482	2080.5
10782.60840	2	147095	49056	46939	401.5	0	0	0	0	0
60840.10782	2	109901.5	31937.5	30477.5	0	0	0	0	0	0
10739.60840	2	86943	28725.5	25039	0	0	0	0	0	0
60840.10739	2	124209.5	125633	99280	328.5	401.5	401.5	0	0	0
11014.25002	2	63619.5	54859.5	53144	0	0	0	0	0	0
25002.11014	2	37996.5	37923.5	36463.5	0	0	0	0	0	0
11010.25002	2	39091.5	39675.5	37887	0	0	328.5	0	0	0
25002.11010	2	66320.5	57487.5	55042	0	0	0	0	0	0
10781.95325	2	186150	107675	104317	328.5	0	0	0	0	0
95325.10781	2	214510.5	218708	212904.5	0	401.5	401.5	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
10739.95325	2	224073.5	311819.5	268786	803	3358	2883.5	0	0	0
95325.10739	2	270136.5	178120	184179	803	949	876	0	0	0
10739.95326	2	118333	101981	105229.5	401.5	474.5	474.5	0	0	0
95326.10739	2	75518.5	128407	106653	328.5	1277.5	1131.5	0	0	0
10989.95326	2	77380	145708	124830	401.5	1606	1204.5	0	0	0
95326.10989	2	99316.5	105850	109244.5	401.5	401.5	474.5	0	0	0
11014.60850	2	9380.5	51757	44749	0	0	0	0	0	0
60850.11014	2	3905.5	2737.5	1679	0	0	0	0	0	0
11015.25000	2	363905	371716	387338	1679	2555	2883.5	2080.5	1679	1752
25000.11015	2	218197	293569.5	292584	401.5	803	803	0	474.5	401.5
14405.25000	2	325288	399967	399054.5	803	1204.5	1606	0	0	0
25000.14405	2	448001	446796.5	430481	2007.5	2883.5	3212	2409	1752	1752
11010.62500	2	49165.5	34711.5	29601.5	0	0	0	0	0	0
62500.11010	2	50005	44201.5	52888.5	0	0	328.5	0	0	0
10782.62500	2	59166.5	47669	56356	0	0	401.5	0	0	0
62500.10782	2	57779.5	57086	50078	0	0	0	0	0	0
10784.25001	2	133882	135524.5	169871	474.5	803	1277.5	0	0	0
25001.10784	2	197939.5	229512	232505	474.5	1752	2080.5	0	0	0
10782.29001	2	381461.5	453293.5	460995	876	2956.5	3102.5	73	73	73
29001.10782	2	225095.5	235461.5	292511	876	1277.5	1752	0	0	0
25001.29001	2	130451	135816.5	172134	474.5	474.5	1277.5	0	0	0
29001.25001	2	205276	240717.5	244294.5	474.5	1752	2080.5	0	0	0
29002.11010	2	49056	82709	50443	401.5	1277.5	803	0	0	0
11007.29002	2	--	85738.5	35076.5	--	1277.5	474.5	--	0	0
10993.95326	2	50698.5	53582	49348	328.5	401.5	401.5	0	0	0
95326.10993	2	70262.5	61977	57451	474.5	401.5	401.5	0	0	0
29001.29002	2	1715.5	7811	28068.5	0	0	401.5	0	0	0
29002.29001	2	4854.5	6132	8066.5	0	0	0	0	0	0
29002.95607	2	1095	4416.5	3577	0	0	0	0	0	0
95607.29002	2	2555	5073.5	4234	0	0	0	0	0	0
60850.95607	2	2628	5475	4635.5	0	0	0	0	0	0
95607.60850	2	1095	4562.5	4051.5	0	0	0	0	0	0
95326.95406	2	12921	16242.5	11972	0	0	0	0	0	0
95406.95326	2	33251.5	28944.5	27521	0	0	0	0	0	0
29001.95406	2	21754	16279	13651	0	0	0	0	0	0
95406.29001	2	2920	5876.5	1350.5	0	0	0	0	0	0
10467.17553	3	6113859.5	5213441	5796638	174798.5	235206	268238.5	563268	688828	766390.5
17553.20054	3	636961.5	3312156	3683178.5	18578.5	149577	170418.5	58692	437671.5	487092.5

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
20054.10469	3	816724	568013	632180	23141	25696	29382.5	75080.5	75117	83913.5
10987.27750	2	208816.5	217138.5	143773.5	474.5	2409	876	876	3212	803
27750.14366	2	178266	185164.5	122749.5	474.5	2263	730	876	2409	803
10468.20053	3	2129154.5	3497795	3893893	56502	165235.5	181952.5	171221.5	485413.5	526950.5
20053.10409	3	5094414.5	5570958.5	6202007	134539	263128.5	289737	410661.5	773362	839281
10410.95610	3	3120786.5	2738704.5	2966574	67817	100667	107711.5	208451.5	333573.5	360437.5
95610.14392	3	4243380.5	3745082.5	4057157.5	92126	137933.5	146730	283276.5	456104	492859.5
14410.15815	2	132166.5	181113	178302.5	2153.5	3102.5	2628	1022	1569.5	1569.5
15815.14410	2	231483	191004.5	218927	3577	4124.5	3029.5	3029.5	2920	3102.5
14487.15815	2	247141.5	204290.5	233892	3978.5	4270.5	3029.5	3029.5	2993	3102.5
15815.14487	2	141255	193231	190858.5	2153.5	3102.5	2774	1022	1642.5	1642.5
10733.95690	2	69131	78840	48873.5	73	73	73	219	73	73
95690.10733	2	44420.5	112420	101178	73	146	401.5	146	620.5	474.5
95692.95698	2	7811	30696.5	8687	0	0	0	0	0	0
95698.95692	2	7482.5	44274.5	62926	0	0	328.5	0	0	328.5
95645.95646	2	3504	5694	1350.5	0	0	0	0	0	0
95646.95645	2	5876.5	7701.5	2445.5	0	0	0	0	0	0
16184.95698	2	87819	120705.5	146949	0	401.5	328.5	0	401.5	401.5
95698.16184	2	10256.5	33872	8541	0	0	0	0	0	0
16183.95645	2	125596.5	185493	12592.5	474.5	3066	328.5	0	1204.5	0
95645.16183	2	65006.5	90483.5	24747	401.5	1204.5	328.5	0	401.5	0
95649.95703	2	10329.5	11278.5	22374.5	0	0	0	0	0	0
95703.95649	2	474.5	9672.5	10220	0	0	0	0	0	0
95648.95704	2	1131.5	11972	12045	0	0	0	0	0	0
95704.95648	2	1752	5292.5	14198.5	0	0	0	0	0	0
31975.95666	2	120924.5	105047	123516	0	0	328.5	0	0	0
95666.31975	2	4161	43617.5	68948.5	0	73	0	0	401.5	0
11009.86301	2	27740	42230.5	37011	328.5	474.5	474.5	0	0	0
86301.11008	2	40186.5	71905	63619.5	328.5	474.5	803	0	0	0
17039.95623	2	18834	77015	61101	0	1022	1350.5	73	2445.5	2372.5
95623.17039	2	54713.5	87198.5	110522	474.5	3723	2080.5	949	7847.5	4234
17039.95624	2	28981	32047	32120	1277.5	2883.5	2883.5	4234	6789	6716
95624.17039	2	32521.5	35003.5	35003.5	1606	2883.5	2883.5	4234	6716	6716
11015.23594	2	229913.5	310761	316747	474.5	803	803	0	474.5	401.5
23594.11015	2	464134	494465.5	507788	1679	2956.5	3285	2080.5	1752	1752
11013.23594	2	144613	193559.5	196005	474.5	803	803	474.5	474.5	876
23594.11013	2	103295	145890.5	148956.5	0	401.5	474.5	0	73	328.5
11003.23594	2	110741	72489	78073.5	401.5	474.5	474.5	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
23594.11003	2	51501.5	55261	56027.5	0	0	0	0	0	0
11017.11011	2	104134.5	146584	144503.5	401.5	474.5	803	0	0	0
11012.11054	2	322222	281086.5	267545	474.5	401.5	401.5	474.5	547.5	547.5
11054.11012	2	104207.5	113880	108879.5	73	0	0	401.5	0	0
14493.14507	2	31426.5	41135.5	50698.5	0	328.5	401.5	401.5	803	876
14507.14493	2	20367	29492	33397.5	0	0	0	474.5	0	0
10998.14507	2	15914	10512	11278.5	0	0	0	0	0	0
14507.10998	2	16169.5	53180.5	52158.5	0	474.5	474.5	0	1423.5	1423.5
14510.15796	2	2518.5	42303.5	37850.5	73	730	803	0	803	803
15796.14510	2	4197.5	47997.5	60626.5	0	876	474.5	0	1679	1204.5
14510.14511	2	10402.5	22484	73547.5	0	401.5	474.5	73	1204.5	1204.5
14511.14510	2	0	438	26900.5	0	0	401.5	0	0	401.5
14511.14512	2	11424.5	31280.5	93732	0	474.5	474.5	73	1204.5	1277.5
14512.14511	2	0	839.5	33215	0	0	401.5	0	0	401.5
14367.14512	2	0	0	56027.5	0	0	5548	0	0	401.5
14512.14367	2	33580	34711.5	142897.5	3942	474.5	803	401.5	1204.5	1606
14493.14510	2	12191	32375.5	65773	0	1131.5	803	401.5	328.5	803
14510.14493	2	9818.5	14235	25002.5	146	693.5	401.5	0	0	73
14400.18553	1	313827	0	0	0	0	0	401.5	0	0
14366.10469	2	--	--	--	--	--	--	--	--	--
50017.95697	2	295978.5	309045.5	307439.5	547.5	474.5	547.5	876	803	803
95697.50017	2	173922.5	297037	272837.5	401.5	401.5	401.5	547.5	949	474.5
50018.95697	2	153847.5	264296.5	268092.5	401.5	401.5	401.5	474.5	547.5	474.5
95697.50018	2	267983	288021.5	289627.5	474.5	474.5	474.5	876	803	803
95688.50017	2	91651.5	331347	295431	73	401.5	73	0	401.5	0
16187.95665	2	56903.5	247762	253164	0	146	73	0	73	0
95665.95688	2	87636.5	340362.5	326018	73	73	73	0	73	328.5
95689.16186	2	150562.5	423181	248163.5	73	949	146	73	1277.5	0
16188.95689	2	67707.5	179142	174032	0	401.5	73	0	73	0
18548.95686	2	182828.5	202794	214182	328.5	401.5	474.5	474.5	803	474.5
95686.18548	2	127969	122238.5	101141.5	0	474.5	474.5	474.5	1350.5	876
14361.95686	2	49311.5	57268.5	52669.5	0	0	0	0	401.5	0
95686.14361	2	56173.5	65225.5	66539.5	0	0	0	0	0	0
14375.95706	2	--	269552.5	259405.5	--	949	876	--	1825	1679
95706.11007	2	--	323061.5	310286.5	--	1277.5	949	--	2153.5	1752
11008.95708	2	--	463112	442708.5	--	1679	1679	--	2153.5	1022
95708.14374	2	--	417377.5	394857	--	1679	1350.5	--	2153.5	1022
14375.95705	2	3102.5	19053	13286	0	0	0	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
95705.14375	2	48289.5	59641	56867	0	401.5	401.5	0	0	0
60850.95705	2	37230	55188	49786	0	401.5	0	0	0	0
95705.60850	2	12446.5	21681	22192	0	0	0	0	0	0
25000.95649	2	14819	15804.5	20987.5	0	0	0	0	0	0
95649.25000	2	4781.5	10804	10804	0	0	0	0	0	0
60850.95649	2	9161.5	12811.5	12848	0	0	0	0	0	0
95649.60850	2	20586	21425.5	21936.5	0	0	0	0	0	0
27630.95660	2	419713.5	430444.5	425663	1277.5	2482	2153.5	1423.5	1825	1825
95660.10989	2	419713.5	421794	417414	1277.5	2153.5	2153.5	1423.5	1825	1752
17016.95646	2	86359	147204.5	174506.5	474.5	474.5	803	0	0	0
95646.17016	2	74058.5	122567	139831.5	328.5	949	1277.5	0	0	0
11004.95646	2	81577.5	132823.5	153738	328.5	949	1350.5	0	0	0
95646.11004	2	93768.5	158446.5	191515.5	474.5	474.5	876	0	0	0
17270.95699	2	331712	400259	416647.5	876	2153.5	1752	1350.5	1752	1022
95699.11004	2	335946	392776.5	376753	876	1752	1679	949	2153.5	1022
95690.10994	2	127421.5	138846	139247.5	401.5	474.5	474.5	474.5	474.5	474.5
10992.95690	2	683973.5	787159	769858	1752	2153.5	2153.5	3504	3577	3175.5
95691.10995	2	557610.5	561552.5	604914.5	1277.5	1350.5	1423.5	2299.5	2628	2299.5
95692.95691	2	109755.5	120012	132166.5	401.5	401.5	474.5	401.5	474.5	474.5
10994.95692	2	109828.5	110449	115887.5	401.5	401.5	401.5	401.5	474.5	474.5
95700.10987	2	166914.5	160855.5	129538.5	474.5	876	730	876	1204.5	803
95696.95697	1	62743.5	77380	68875.5	73	73	73	146	73	73
95697.95696	1	34602	25185	30514	219	73	146	0	0	0
95670.95700	2	184836	174287.5	145306.5	474.5	876	876	1204.5	1204.5	1131.5
10986.95663	2	135269	148153.5	129502	401.5	803	803	803	803	1131.5
95663.95670	2	154139.5	143299	116873	474.5	876	328.5	876	1204.5	803
95664.10986	2	123370	132203	128516.5	474.5	1533	0	1131.5	1460	0
95695.95698	2	620.5	1241	0	0	0	0	0	0	0
95698.95695	2	20440	19564	20987.5	0	0	0	0	0	0
14369.95655	2	112931	120669	106324.5	474.5	1533	474.5	1204.5	2591.5	876
95655.95664	2	261997	250061.5	224037	1204.5	2336	401.5	2409	3394.5	0
95669.14512	2	18067.5	31244	62123	3942	4964	2883.5	0	0	0
14371.95669	2	3723	7263.5	15257	803	1204.5	474.5	0	0	0
50015.95685	1	8796.5	10402.5	12081.5	474.5	73	73	1277.5	146	146
95685.50015	1	9964.5	10402.5	12081.5	474.5	73	73	1277.5	146	146
10733.95693	2	136364	142861	124027	401.5	73	73	547.5	401.5	73
95693.10733	2	45807.5	45260	37595	0	0	0	73	0	0
95690.95691	2	0	73	0	0	0	0	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
95691.95690	2	1971	10658	15658.5	0	0	0	0	0	0
27630.95699	2	4708.5	3504	0	0	0	0	0	0	0
95699.27630	2	24272.5	32193	29784	0	474.5	401.5	0	0	0
95645.95699	2	54859.5	51319	8614	0	730	0	0	328.5	0
95699.95645	2	9599.5	12994	3686.5	0	0	0	0	0	0
95672.95705	2	12629	20184.5	22666.5	0	0	0	0	0	0
95705.95672	2	0	22046	20367	0	0	0	0	0	0
95706.95708	2	--	0	0	--	0	0	--	0	0
95708.95706	2	--	20184.5	22666.5	--	0	0	--	0	0
95672.95706	2	0	22447.5	20841.5	0	0	0	0	0	0
95706.95672	2	13030.5	20732	23214	0	0	0	0	0	0
95703.95704	2	16279	12848	25075.5	0	0	0	0	0	0
95704.95703	2	1131.5	11972	12045	0	0	0	0	0	0
95703.95705	2	0	0	0	0	0	0	0	0	0
95705.95703	2	2664.5	0	0	0	0	0	0	0	0
95686.95687	2	90155	96761.5	80263.5	0	401.5	0	0	401.5	0
95687.95686	2	52669.5	41245	10804	0	328.5	0	0	474.5	401.5
95688.95689	2	1350.5	219	0	0	0	0	0	0	0
95689.95688	2	25842	13614.5	0	0	0	0	0	0	0
95687.95689	2	40880	28616	2847	0	0	0	0	0	0
95689.95687	2	16607.5	10402.5	3358	0	0	0	0	0	0
95700.95655	2	4891	620.5	8723.5	0	0	0	0	0	0
95655.95701	2	46756.5	73182.5	68802.5	401.5	2591.5	1606	474.5	5657.5	2883.5
95701.95655	2	52304.5	38252	11826	0	0	0	0	401.5	0
95667.95701	2	78840	100375	70518	474.5	1898	1898	803	3796	3394.5
95701.95667	2	101470	109646	128954.5	547.5	4854.5	2482	1752	10986.5	6241.5
95623.95667	2	25550	62889.5	45369.5	328.5	949	949	474.5	1971	1569.5
95667.95623	2	40040.5	67744	77416.5	401.5	2920	1606	876	5986	2956.5
14507.95658	2	23177.5	1898	1387	0	0	0	0	0	0
95658.14507	2	15549	15220.5	11680	0	474.5	474.5	0	620.5	620.5
95658.95701	2	41719.5	30039.5	9599.5	0	0	0	0	328.5	0
95701.95658	2	29236.5	51903	29273	0	547.5	547.5	328.5	1423.5	1022
10986.95658	2	67379	35989	38690	0	0	0	0	0	0
95658.10986	2	68182	20257.5	28178	328.5	401.5	401.5	474.5	876	803
95664.95663	2	27521	12738.5	4745	0	0	0	0	0	0
95647.95661	2	0	0	0	0	0	0	0	0	0
95661.95647	2	11351.5	0	0	0	0	0	0	0	0
11006.95661	2	47085	26535.5	26535.5	0	0	0	0	0	0

Table A-2: Build Alternative 2-Way Ramsay Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208374594.5**	**2693663.5**	**4451284.5**	**4563339.5**	**6602996**	**10433415.5**	**10875503.5**
95661.11006	2	38434.5	21608	21608	0	0	0	0	0	0
95694.95696	1	9088.5	32010.5	27448	0	0	0	0	0	0
95666.95695	2	2956.5	3759.5	1168	0	0	0	0	0	0
95695.95666	2	73	23323.5	13797	0	0	0	0	0	0
95666.95697	2	73	7665	0	0	0	0	0	0	0
95697.95666	2	14928.5	12775	39274	0	0	0	0	0	0
10779.95696	1	10950	11278.5	8979	0	0	0	0	0	0
95696.10779	1	119428	148847	139649	73	0	0	0	0	0
10777.95696	1	125012.5	140269.5	130633.5	73	0	0	0	0	0
16187.95695	2	0	1204.5	0	0	0	0	0	0	0
95695.16187	2	103331.5	69934	90118.5	0	0	0	0	73	0
95665.95666	2	73	17520	53472.5	0	73	0	0	73	0
95666.95665	2	125815.5	107784.5	148737.5	0	0	328.5	0	0	328.5
14405.95704	2	501327.5	544908.5	515380	1752	2153.5	1752	3175.5	3504	3102.5
95704.14375	2	267764	282619.5	271377.5	876	1277.5	876	1423.5	1825	1679
95648.14406	2	760696.5	931005.5	910967	2226.5	4307	4161	2445.5	3577	2774
14374.95648	2	371351	466652.5	448329.5	876	2080.5	1679	1350.5	2153.5	1022
95693.27696	1	94900	206444	218525.5	0	73	73	0	73	0
10728.95693	1	19673.5	39018.5	45369.5	0	0	0	0	0	0
95693.10728	1	63072	59604.5	58436.5	0	0	0	0	0	0
16186.95665	2	--	--	23214	--	--	0	--	--	0
95665.16186	2	--	--	35952.5	--	--	0	--	--	0
16186.95687	2	--	--	--	--	--	--	--	--	--
95687.16186	2	--	--	--	--	--	--	--	--	--
95709.14363	2	--	--	232030.5	--	--	547.5	--	--	474.5
16186.95709	2	--	--	243090	--	--	547.5	--	--	474.5
16187.95709	2	--	--	0	--	--	0	--	--	0
95709.16187	2	--	--	26061	--	--	0	--	--	0
95701.95709	2	--	--	--	--	--	--	--	--	--
95709.95701	2	--	--	--	--	--	--	--	--	--
16183.16184	2	16899.5	48691	42851	0	401.5	328.5	0	401.5	328.5
16184.16183	2	0	365	0	0	0	0	0	0	0
16186.14363	2	339742	346677	--	474.5	949	--	401.5	949	--
14369.95687	2	150343.5	214729.5	--	0	803	--	401.5	2007.5	--
95687.14369	2	108368.5	269151	--	0	73	--	0	0	--
14367.14366	2	49348	62269	52560	6095.5	7081	5365.5	0	0	0
14367.10469	2	1036709.5	441394.5	338099.5	14782.5	6898.5	8249	7446	2482	2153.5

Table A-3

Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary
I-5 Rose Quarter Improvement Project

Roadtype [1]	Area ID [2]	Auto			Medium Truck			Heavy Truck		
		2015	2040 No Build	2040 Build	2015	2040 No Build	2040 Build	2015	2040 No Build	2040 Build
Average Annual Vehicle Miles Traveled (veh-miles/yr) [3]										
5	1 & 2	112106903	123882752	121878245	783509	1361669	1266258	1077297.5	1810473	1674291.5
4	3	84060996.5	81632469	86271947.5	1910154.5	3089615.5	3313178	5525698.5	8622942.5	9219206.5
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
RoadType Distribution [a]										
5	1 & 2	0.57148	0.60279	0.58553	0.29087	0.30590	0.27651	0.16315	0.17353	0.15370
4	3	0.42852	0.39721	0.41447	0.70913	0.69410	0.72349	0.83685	0.82647	0.84630
Total		**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**	**1.00**

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
10408.10410	3	1608372.5	1526174.5	1618884.5	38252	64203.5	68291.5	106726	179324.5	192501
10408.15686	3	1267754.5	1233335	1425361.5	24163	39894.5	35295.5	45734.5	69532.5	68985
10409.10408	3	6514848.5	5211214.5	5658887	146803	205787	211335	380257	528410.5	561151
10410.15685	1	1040104	1243117	1266477	31353.5	67707.5	72379.5	67196.5	133736	140780.5
10467.16189	2	375512	448366	230607	7190.5	15403	6022.5	4161	13979.5	1606
10468.14368	2	573670.5	782560	836908.5	5986	10074	10548.5	4818	5037	5840
10469.10470	3	7813883.5	6675302.5	6753668	193559.5	242871	277363.5	539214.5	630501	704012
10470.15748	3	4231846.5	3444322.5	3520680.5	123844.5	148445.5	170491.5	366788.5	411610.5	466214.5
10471.10472	3	9188291	5395466.5	5912343	202356	189690.5	207429.5	558085	498298	540930
10472.10468	3	1047148.5	917938.5	1005794	22922	32339	35295.5	63473.5	84789.5	91870.5
10728.10729	2	469536	376059.5	393141.5	620.5	620.5	620.5	1022	1095	766.5
10728.10791	2	47085	58874.5	59349	0	0	0	0	0	0
10791.10728	2	35587.5	38215.5	42157.5	0	0	0	0	0	0
10729.10789	2	24856.5	16717	17593	0	0	0	0	0	0
10789.10729	2	58144.5	52304.5	53837.5	0	0	0	0	0	0
10729.31668	2	294482	244440.5	254989	474.5	474.5	547.5	474.5	547.5	547.5
10731.10733	2	326018	382739	352115.5	73	401.5	401.5	73	401.5	73
10733.10731	2	532571.5	596957.5	584146	474.5	474.5	547.5	474.5	620.5	620.5
10731.14376	2	658131.5	737190.5	721678	474.5	547.5	547.5	474.5	620.5	693.5

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
14376.10731	2	402850.5	473003.5	435080	73	401.5	401.5	146	401.5	474.5
10734.10741	2	105229.5	122786	120778.5	0	0	0	73	0	0
10741.10734	2	167389	184544	178229.5	401.5	401.5	401.5	1204.5	401.5	401.5
31668.10734	2	824571.5	683353	713903.5	1022	1095	1095	2226.5	2044	2044
10736.10737	2	724050.5	667767.5	649335	2226.5	1825	1898	3431	2372.5	2372.5
10736.10738	2	28287.5	30331.5	29966.5	0	0	0	0	0	0
10738.10736	2	60444	82088.5	67817	328.5	401.5	401.5	0	0	0
10737.10993	2	4015	13030.5	10183.5	0	0	0	0	0	0
10993.10737	2	54640.5	35989	33251.5	401.5	401.5	328.5	0	0	0
10737.10992	2	852457.5	761134.5	740220	2701	3029.5	2628	3431	2372.5	2372.5
10738.10739	2	69788	72014.5	67671	0	401.5	401.5	0	0	0
10739.10738	2	89315.5	109828.5	94243	328.5	401.5	401.5	0	0	0
10740.10789	2	618748	644553.5	659956.5	803	1277.5	876	1277.5	1277.5	803
10741.10740	2	416355.5	433912	443621	474.5	803	803	803	803	474.5
10741.10781	2	90812	107091	104353.5	0	0	0	73	0	0
10781.10741	2	153920.5	189690.5	187172	0	401.5	401.5	328.5	73	73
10770.14399	1	67707.5	58473	64094	0	0	0	328.5	0	328.5
10770.16316	1	341457.5	271560	284627	547.5	620.5	620.5	1095	1241	1715.5
10773.10985	1	66320.5	69897.5	67853.5	0	73	0	73	73	401.5
10985.10773	1	21352.5	39383.5	42851	0	0	0	0	0	0
10777.10778	1	85811.5	1496.5	0	0	0	0	0	0	0
14400.10778	1	241009.5	217722.5	225278	401.5	474.5	474.5	474.5	876	876
10781.10793	2	347297.5	235717	228453.5	401.5	401.5	73	876	73	73
10793.10781	2	529834	380330	380220.5	803	474.5	547.5	1204.5	1022	1022
10782.10783	2	317659.5	367080.5	398178.5	1277.5	1752	1825	0	0	0
10783.10782	2	640502	712407	710217	2080.5	4964	5110	146	73	73
10783.11003	2	41719.5	54129.5	61137.5	0	73	0	0	0	0
11003.10783	2	97053.5	83220	85081.5	0	328.5	328.5	0	0	0
10783.29052	2	48946.5	58911	63218	0	401.5	401.5	0	0	0
29052.10783	2	81030	98878.5	100557.5	0	474.5	474.5	0	0	0
10784.11004	2	114427.5	165418	171696	401.5	1277.5	1277.5	0	0	0
11004.10784	2	156475.5	140050.5	183047.5	803	803	949	0	0	0
10784.27630	2	414895.5	387849	376388	1277.5	2153.5	1752	1825	2153.5	1825
10785.10794	2	229329.5	252872	258858	0	401.5	401.5	0	0	0
10794.10785	2	116763.5	212941	218124	0	474.5	474.5	0	0	0
10785.11053	2	108806.5	174251	182938	328.5	474.5	474.5	0	0	0
11053.10785	2	258456.5	323463	315469.5	474.5	1204.5	1204.5	0	0	0
10785.29052	2	121800.5	148518.5	150380	401.5	876	876	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
29052.10785	2	73584	88001.5	95192	328.5	401.5	474.5	0	0	0
10789.10791	2	534250.5	513226.5	525235	803	1131.5	876	803	1131.5	803
10791.10792	2	244258	215277	214912	401.5	730	401.5	803	1131.5	474.5
10792.10791	2	211919	225497	227833	328.5	401.5	401.5	401.5	474.5	474.5
10792.10793	2	--	403799.5	405296	--	401.5	401.5	--	73	73
10793.10792	2	--	812855	799313.5	--	803	474.5	--	401.5	401.5
10793.10794	2	58181	84242	84351.5	0	0	0	0	0	0
10794.10793	2	114500.5	145379.5	148117	0	0	0	0	0	0
10793.11054	2	99864	109062	104171	73	0	0	401.5	0	0
11054.10793	2	308242.5	270903	257945.5	474.5	401.5	401.5	474.5	547.5	547.5
10795.11016	2	121581.5	122603.5	144394	73	73	73	0	73	73
11016.10795	2	733540.5	813329.5	815519.5	2628	3504	3723	3905.5	3321.5	4161
10795.11020	2	601629.5	568159	561005	2153.5	2628	2847	3029.5	2372.5	3066
10801.15729	3	4109717.5	3551778.5	3598717.5	71832	132495	120340.5	220533	394711	351495
10985.31267	1	60225	76540.5	71284.5	0	73	73	73	474.5	401.5
10987.14371	2	339742	347662.5	184580.5	5621	6643	3358	2482	1277.5	328.5
14371.10987	2	--	--	0	--	--	0	--	--	0
10988.10989	2	34018	75226.5	59166.5	0	803	803	0	328.5	0
10989.10988	2	31937.5	32667.5	30185.5	0	0	0	0	0	0
10988.17270	2	483953.5	486837	517752.5	1350.5	2628	3029.5	1825	2153.5	1423.5
10989.10990	2	479208.5	453184	449607	1752	2555	2226.5	2226.5	2153.5	1825
10990.10992	2	535747	486216.5	495268.5	2153.5	2555	2555	2701	2226.5	2226.5
10990.10993	2	691492.5	677038.5	679593.5	2482	2883.5	2555	2153.5	2080.5	1606
10991.10988	2	405405.5	448147	460192	1350.5	3029.5	2956.5	1423.5	2080.5	1350.5
10991.10990	2	405916.5	375366	388542.5	1277.5	1679	1606	2007.5	1277.5	1277.5
10992.10995	2	594731	502459	506437.5	2555	2956.5	2628	2226.5	1898	1825
10993.10738	2	607944	608345.5	606958.5	1277.5	2080.5	1752	2153.5	2080.5	1606
10994.31975	2	524468.5	539579.5	543850	1350.5	1679	1679	2701	2628	2299.5
31975.10994	2	549215.5	515197.5	540163.5	1277.5	1350.5	1350.5	2299.5	2299.5	2299.5
10995.10991	2	313936.5	304483	329120.5	547.5	876	876	1022	1022	1022
10996.14398	2	159906.5	204035	205860	1752	3540.5	2555	2555	5146.5	3175.5
14398.10996	2	157935.5	183230	210860.5	1095	2117	2445.5	2044	2883.5	3540.5
10996.17039	2	184945.5	183230	210860.5	1423.5	2117	2445.5	2372.5	2883.5	3540.5
17039.10996	2	199363	204035	205860	1752	3540.5	2555	3029.5	5146.5	3175.5
10997.11002	2	62816.5	155307.5	192464.5	620.5	3175.5	3431	1350.5	4416.5	5000.5
11002.10997	2	126655	109135	120596	1679	1825	1752	3358	1642.5	1898
10997.17039	2	186515	589110	554179.5	2883.5	9636	9745.5	4964	10694.5	11388
17039.10997	2	196151	544105.5	674191.5	2299.5	10220	11059.5	4708.5	15804.5	17155

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
10998.10997	2	--	185237.5	118041	--	2737.5	2336	--	4088	4416.5
10998.10999	2	33470.5	17483.5	17264.5	401.5	73	73	876	73	146
10999.10998	2	19308.5	19965.5	13103.5	401.5	328.5	0	803	401.5	328.5
10999.11000	2	46501	8906	10329.5	401.5	0	0	1679	0	0
11000.10999	2	55297.5	47997.5	31353.5	876	730	401.5	2336	803	803
10999.11001	2	64386	50443	47961	803	547.5	547.5	1277.5	1095	1168
11000.11001	2	261303.5	364124	352225	1423.5	5438.5	4015	876	5073.5	1825
11001.11000	2	317440.5	450373.5	446285.5	2336	5037	5767	803	3285	4015
11001.12080	2	2112656.5	2484445.5	2396334.5	12300.5	37631.5	27813	11096	36317.5	15366.5
12080.11001	2	2223616.5	2790425	2766773	15038	31755	37266.5	5621	20695.5	25696
11002.16171	2	376899	365255.5	452892	4088	6643	7154	7300	10512	11278.5
16171.11002	2	495852.5	256595	283495.5	6168.5	3869	4380	8504.5	4234	4343.5
11003.11011	2	1387	10767.5	4270.5	0	0	0	0	0	0
11004.11005	2	393470	459973	420151.5	1350.5	2153.5	1350.5	1423.5	2153.5	1350.5
11005.11006	2	39237.5	19089.5	18688	0	0	0	0	0	0
11006.11005	2	24345.5	13505	14563.5	0	0	0	0	0	0
11005.11008	2	386352.5	463586.5	424677.5	1204.5	2153.5	1679	1496.5	2153.5	1350.5
11006.10784	2	323791.5	333391	317404	949	1350.5	949	1423.5	2153.5	1825
11007.11006	2	314338	328098.5	313973	949	1277.5	1277.5	1423.5	1825	1752
11008.11007	2	15731.5	54713.5	26499	0	803	474.5	0	0	0
11009.16182	2	185967.5	150270.5	110120.5	3212	2883.5	2482	1204.5	474.5	0
11010.11003	2	108259	143372	137751	474.5	1277.5	1277.5	0	0	0
11011.11012	2	54239	116544.5	118479	0	474.5	474.5	0	0	0
11012.11011	2	36536.5	45004.5	44055.5	0	0	0	0	0	0
11011.11053	2	64897	90410.5	87709.5	0	401.5	401.5	0	0	0
11053.11011	2	27119.5	59276	60407.5	0	328.5	328.5	0	0	0
11012.11013	2	273786.5	374855	375439	1131.5	2007.5	2080.5	2007.5	1679	1679
11013.11012	2	132933	171367.5	171075.5	0	401.5	401.5	0	73	73
11012.11017	2	--	29638	30806	--	0	0	--	0	0
11017.11012	2	171659.5	158702	154504.5	803	803	803	1606	1204.5	1277.5
11013.14909	2	150927.5	189946	187281.5	474.5	803	803	474.5	876	803
14909.11013	2	98915	99426	96250.5	0	73	73	0	73	73
11014.11015	2	20294	21243	21352.5	0	0	0	0	0	0
11015.11014	2	34784.5	38982	37266.5	0	0	0	0	0	0
11016.14909	2	117420.5	118552	114208.5	0	73	73	0	73	73
14909.11016	2	179580	226044.5	222759.5	474.5	803	803	803	876	1204.5
11018.11017	2	986850.5	1011378.5	985646	4088	5037	5365.5	5292.5	4562.5	5365.5
11536.10552	3	1054047	1016014	965717	10037.5	21206.5	20695.5	24528	52122	51830

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
11589.15848	1	405077	564691.5	545310	4015	9453.5	8833	5913	14855.5	13359
31695.11589	1	364160.5	537024.5	520417	3723	8504.5	8030	5292.5	13359	12410
11590.31695	1	450775	582686	575240	3029.5	8504.5	8212.5	4635.5	13505	12337
27001.11599	1	89680.5	91834	93513	693.5	1168	1277.5	985.5	1788.5	1825
11599.32136	1	225606.5	360656.5	357225.5	1715.5	5438.5	5256	2555	8723.5	7957
12085.12087	1	417815.5	790517	801321	8103	24564.5	23542.5	11315	39785	38179
15844.12085	1	116836.5	142131	138773	1861.5	3759.5	3650	3212	5949.5	5475
12085.15862	1	31718.5	35916	32594.5	401.5	474.5	328.5	474.5	1277.5	1204.5
14361.50017	2	130268.5	158775	166330.5	0	328.5	328.5	401.5	401.5	401.5
50017.14361	2	117347.5	83548.5	65043	0	73	0	401.5	474.5	73
14363.10987	2	412048.5	484720	215131	6168.5	10913.5	3759.5	2153.5	4891	474.5
14363.14369	2	147715.5	136327.5	188997	474.5	474.5	803	1204.5	1204.5	1606
14364.14363	2	405296	386827	411574	3066	5037	4964	2482	2482	2883.5
14364.14365	2	392484.5	407157.5	391097.5	4416.5	6825.5	4635.5	2153.5	5365.5	2956.5
14365.10409	2	1138982.5	1105402.5	1138836.5	15330	24272.5	16133	7482.5	17629.5	10366
14365.16187	2	518336.5	705326	511255.5	839.5	766.5	474.5	401.5	949	474.5
14364.14366	2	--	--	0	--	--	0	--	--	0
14366.14364	2	112602.5	126253.5	120121.5	3613.5	6278	3759.5	474.5	4343.5	2007.5
14366.14368	2	301417	311491	163739	1277.5	2263	328.5	1277.5	1679	0
14367.17020	2	59787	27813	86687.5	474.5	401.5	4088	401.5	73	803
17020.14367	2	30733	95995	106908.5	4818	12045	11972	0	0	0
14368.16185	2	123589	192939	229110.5	2591.5	3686.5	3759.5	2007.5	2409	2482
14370.14363	2	105302.5	161220.5	--	3029.5	5475	--	876	3212	--
14370.14369	2	81760	71649.5	0	803	2591.5	0	1204.5	3723	0
14367.14371	2	--	--	--	--	--	--	--	--	--
14371.14367	2	491655	470302.5	176076	2080.5	2153.5	730	2883.5	1350.5	474.5
14372.14373	2	820228	862349	822965.5	3832.5	7336.5	7811	547.5	1606	73
14373.14372	2	587577	644553.5	681418.5	6460.5	5803.5	5803.5	1642.5	2080.5	547.5
14372.14487	2	200567.5	221117	233782.5	2372.5	1825	1825	547.5	803	73
14374.14375	2	6132	23688.5	17921.5	0	0	0	0	0	0
14375.14374	2	27813	67160	62926	0	401.5	401.5	0	0	0
14376.27696	2	413618	535272.5	534250.5	73	401.5	401.5	401.5	474.5	474.5
27696.14376	2	338537.5	430043	397777	328.5	474.5	73	73	693.5	474.5
14376.31257	2	623675.5	691894	721313	474.5	949	803	876	1496.5	876
31257.14376	2	423619	556442.5	592760	146	474.5	401.5	620.5	949	949
14383.27515	1	144503.5	184580.5	166075	0	73	0	0	146	0
27515.14383	1	147569.5	261267	258091.5	0	328.5	401.5	0	328.5	0
14384.27697	1	157461	230388	227577.5	0	328.5	73	0	328.5	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
27697.14384	1	154285.5	162717	146219	0	73	0	0	146	0
14384.31661	1	65846	54786.5	41610	0	0	0	0	0	0
31661.14384	1	35952.5	35770	32375.5	0	0	0	0	0	0
14384.31671	1	214364.5	227358.5	221847	0	0	0	0	0	0
31671.14384	1	327952.5	389674	333354.5	0	73	73	0	0	0
14386.14385	1	82526.5	77854.5	83913.5	0	0	0	0	0	0
31278.14385	1	231227.5	273896	275246.5	0	474.5	401.5	474.5	547.5	474.5
14385.31661	1	60444	72744.5	66028.5	0	0	0	0	0	0
31661.14385	1	110887	111726.5	85118	0	73	73	0	73	73
14386.14387	1	54932.5	63692.5	58911	0	0	73	0	0	0
14387.14386	1	46610.5	47340.5	42522.5	0	0	0	0	0	0
14387.14848	1	80446	159176.5	147606	0	73	146	0	0	73
14848.14387	1	68072.5	118077.5	106105.5	0	0	0	0	0	0
14388.31257	2	116435	172681.5	184142.5	0	401.5	73	146	474.5	474.5
31257.14388	2	199107.5	210349.5	226336.5	0	401.5	328.5	401.5	547.5	401.5
14388.50018	2	630099.5	600352	632800.5	1423.5	1423.5	1752	2299.5	2299.5	2372.5
50018.14388	2	552610	567830.5	577539.5	1350.5	1752	1752	1825	2226.5	2299.5
14389.27689	1	652401	353174	322879	547.5	401.5	73	803	401.5	401.5
14395.14396	3	276305	341530.5	335471.5	3577	8176	6570	8212.5	15111	12884.5
14395.15730	3	2226098.5	3358109.5	3329749	40369	77854.5	72963.5	131509.5	237943.5	221263
14396.10466	3	458841.5	588051.5	559362.5	10110.5	21498.5	16534.5	22265	38836	33142
14397.14398	2	196698.5	165965.5	199910.5	1496.5	2664.5	2920	2701	3504	3686.5
14398.14397	2	167316	211700	214401	2153.5	4343.5	2956.5	3102.5	6351	3905.5
14397.50015	2	87600	111069.5	112274	949	2336	1679	1752	3139	1825
50015.14397	2	103149	86979.5	104791.5	949	1496.5	1423.5	1752	1788.5	2117
14398.50016	2	101944.5	67853.5	66977.5	328.5	328.5	328.5	474.5	876	803
50016.14398	2	65736.5	87673	90593	73	401.5	401.5	219	876	1277.5
31267.14399	1	111945.5	142496	132896.5	0	401.5	401.5	401.5	547.5	474.5
14404.14405	2	875635	979623.5	974002.5	5183	6935	6862	4672	5694	5219.5
14404.15492	2	992909.5	972944	999479.5	6460.5	8212.5	7154	10548.5	12519.5	13578
14405.14406	2	224548	246302	246813	2080.5	2956.5	3029.5	1350.5	1496.5	1496.5
14406.14405	2	10877	20002	15111	0	0	0	0	0	0
14406.14407	2	164834	206626.5	204582.5	2628	3905.5	3905.5	1095	2044	2044
14407.14406	2	308060	284262	319630.5	4927.5	5949.5	4307	3905.5	4088	4453
14406.15494	2	1528145.5	1645055	1686117.5	9782	13614.5	12227.5	9307.5	10950	9855
14407.14410	2	86797	119136	118515.5	1277.5	1752	1752	547.5	1022	1022
14410.14407	2	163848.5	160417.5	180164	2372.5	3175.5	2226.5	2153.5	1971	2226.5
14408.10471	1	383980	469572.5	563779	5840	10877	12154.5	15585.5	24528	25550

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
14408.16192	2	177025	139028.5	85227.5	3686.5	3285	2810.5	1277.5	803	0
14409.11009	2	154577.5	159432	150672	803	1423.5	1423.5	0	0	0
14409.16191	2	23798	69423	74752	219	949	803	73	474.5	803
16191.14409	2	73	876	474.5	0	0	0	0	0	0
14410.16191	2	0	401.5	0	0	0	0	0	0	0
16191.14410	2	7227	20987.5	22520.5	0	401.5	401.5	0	0	0
14441.17255	1	102346	45661.5	40405.5	474.5	0	0	949	401.5	401.5
14446.15500	1	1097409	838222.5	902572	15549	20622.5	20878	38288.5	45369.5	45406
15503.14448	1	135670.5	145197	145416	474.5	949	876	620.5	1095	949
14486.15995	1	173046.5	234038	204363.5	4781.5	10840.5	7738	7008	15038	9928
14487.14409	2	90374	116106.5	114646.5	474.5	1350.5	1204.5	73	401.5	401.5
14487.14490	2	199399.5	250463	274480	3869	3978.5	4051.5	1496.5	2044	1715.5
14490.14487	2	232979.5	198268	236045.5	4124.5	4818	3431	3504	3540.5	3978.5
14488.16182	2	49640	116252.5	151803.5	474.5	474.5	474.5	0	73	0
16182.14488	2	279042.5	293898	271195	4015	4964	4964	1277.5	876	0
14488.17018	2	110412.5	109244.5	108113	1277.5	1679	1679	474.5	401.5	0
17018.14488	2	2847	28689	35040	0	0	0	0	0	0
17020.14488	2	103149	70700.5	133115.5	474.5	474.5	1204.5	474.5	73	1131.5
14490.14491	2	87125.5	109427	119902.5	1898	1752	1752	620.5	1022	620.5
14491.14490	2	101616	86505	103331.5	1752	2299.5	1679	1350.5	1496.5	1825
14491.17017	2	189800	232249.5	234439.5	6205	5584.5	5511.5	2299.5	1971	1496.5
17017.14491	2	176660	241265	264041	3321.5	4197.5	3029.5	2226.5	2993	2701
14491.17018	2	7555.5	73693.5	90629.5	0	328.5	401.5	0	0	0
17018.14491	2	284590.5	282400.5	279115.5	4015	4635.5	4964	1277.5	876	401.5
14491.17024	2	77781.5	82198	78110	401.5	803	876	0	0	0
14492.15489	2	94097	155307.5	192464.5	1022	3175.5	3431	1825	4416.5	5000.5
15489.14492	2	123844.5	109135	120596	1679	1825	1752	2226.5	1642.5	1898
14492.16171	2	76613.5	98258	108405	876	1496.5	1752	1350.5	1569.5	1898
16171.14492	2	58217.5	139722	173594	620.5	2372.5	3102.5	1277.5	3942	4124.5
15489.15490	2	257653.5	227030	254149.5	4708.5	4526	5037	3504	2518.5	2372.5
15490.15489	2	231592.5	174433.5	175382.5	2883.5	2847	2628	3248.5	1971	1168
15489.15796	2	55516.5	91688	106689.5	803	1569.5	2080.5	401.5	2299.5	2701
15796.15489	2	107054.5	93987.5	107529	2336	2226.5	3613.5	730	0	803
15490.17017	2	171404	233928.5	256047.5	3248.5	4124.5	3029.5	2226.5	2518.5	2701
17017.15490	2	184288.5	225314.5	227650.5	6132	5511.5	5511.5	2299.5	1971	1496.5
15491.15744	1	1057441.5	853662	924581.5	18031	19929	21206.5	33178.5	35952.5	37777.5
15491.15745	1	2631139	2605297	2485540.5	24637.5	51209.5	50516	55151.5	118406	117566.5
15494.14404	2	164067.5	158373.5	164359.5	1022	1350.5	803	876	876	1277.5

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
15496.14446	1	864721.5	766646	824535	13468.5	20476.5	20476.5	35879.5	49238.5	49019.5
15496.15503	1	1036782.5	1072370	1075582	4745	7519	7263.5	5803.5	10329.5	8906
15500.16190	3	4895270.5	6362534	6674755	118844	256412.5	281013.5	333391	702661.5	765551
15501.15757	1	1071348	997362.5	986485.5	17118.5	25185	25185	46939	62050	61429.5
15685.15995	1	1323855	1582421	1611876.5	39931	86724	91907	85702	170272.5	179251.5
15686.15687	3	563268	548266.5	633640	10913.5	17739	15330	20257.5	30879	30660
15687.15688	3	704085	685397	791648.5	13322.5	22155.5	19162.5	25221.5	38398	38726.5
15688.15689	3	352079	342735	396025	6825.5	10913.5	9745.5	12410	19126	19162.5
15689.15485	3	492896	479464	554435	9307.5	15658.5	13979.5	17702.5	27119.5	27156
15729.15484	3	2054658	2007463.5	2033999	35916	75044	68145.5	110303	223015	198742.5
15730.14392	3	3895864	2880981.5	2856636	70299	66831.5	62415	230643.5	204290.5	189982.5
15744.14408	1	853808	938853	1017328	14746	22082.5	22885.5	26864	39785	41537
15745.15746	3	1445108	1463869	1396928	13724	28725.5	28616	30149	66758.5	66211
15746.11536	3	3191998	3057203.5	2916532.5	29930	59933	59312.5	66868	138955.5	138262
15747.11537	1	1044484	948452.5	991376.5	16790	22849	24053.5	39310.5	49311.5	49567
15748.10552	3	2996832.5	2987707.5	3019061	108952.5	156694.5	184252	337661.5	458951	529724.5
15748.15747	1	531513	850778.5	889614.5	8431.5	20440	21243	19892.5	44420.5	44274.5
15754.14446	1	166549.5	143007	155234.5	1277.5	1423.5	1679	0	0	0
15754.15612	1	494100.5	509686	522753	5037	4781.5	5000.5	3723	985.5	1533
15757.15497	1	561297	534980.5	528994.5	9234.5	13797	13468.5	24710.5	33142	32996
11000.15796	2	73036.5	92235.5	112091.5	1277.5	2226.5	2956.5	401.5	474.5	401.5
15796.11000	2	36098.5	84132.5	74058.5	146	1752	2007.5	0	1350.5	1752
15848.15843	1	265136	428875	414165.5	3394.5	8176	7957	5219.5	13359	12410
15843.27007	1	210678	315725	305103.5	2847	7701.5	7154	4672	12410	11607
27007.15844	1	198377.5	278714	268129	2847	6898.5	6679.5	4343.5	11132.5	10402.5
15995.15487	1	1106388	1187819.5	1178767.5	42449.5	84351.5	83877	85884.5	165235.5	164834
16182.17016	2	155818.5	212612.5	247251	803	949	876	0	73	0
17016.16182	2	133480.5	157899	182719	474.5	1350.5	1752	0	0	0
16185.14364	2	751827	738066.5	749491	4818	7117.5	7117.5	4635.5	4380	4380
16189.14370	2	429021	512825	263603	8066.5	17666	6825.5	5037	16315.5	2007.5
16190.10471	3	1516502	2911459	3054466	36792	117603	128297.5	103112.5	321528.5	350144.5
16192.11009	2	402777.5	316272.5	193705.5	8358.5	7373	6497	3285	1679	0
16316.50016	1	54494.5	43508	45625	0	73	73	73	73	73
17024.14372	2	287839	304045	289883	1350.5	2555	2628	73	474.5	0
27515.27697	1	211773	213379	192136	0	401.5	0	73	146	0
27697.27515	1	216518	302037.5	298424	0	328.5	401.5	0	328.5	73
27689.10777	1	549325	297438.5	272326.5	474.5	0	73	474.5	401.5	401.5
31975.50018	2	1175701.5	1324256.5	1365136.5	2774	4307	3978.5	4599	5803.5	5219.5

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
50018.31975	2	1571799.5	1449488	1540884	3248.5	3577	4051.5	5219.5	5803.5	5219.5
50015.50016	2	3686.5	60991.5	77562.5	73	438	620.5	547.5	1058.5	1168
50016.50015	2	59860	79716	75810.5	474.5	1533	1752	1168	2993	3102.5
10733.10734	2	269479.5	298789	277947.5	803	474.5	474.5	2080.5	1277.5	1277.5
10734.10733	2	375110.5	410479	392083	803	401.5	474.5	1679	1277.5	620.5
11783.65102	1	113916.5	207466	244769	1314	2445.5	2226.5	766.5	2737.5	2226.5
14361.16188	2	447380.5	61685	38982	474.5	547.5	292	474.5	73	0
27690.18548	1	199290	236739	238929	949	2628	2628	1642.5	4453	4854.5
65102.27001	1	103587	129976.5	143299	1314	1496.5	1350.5	912.5	1788.5	1679
15925.11590	1	521767.5	539397	532644.5	3577	7884	7409.5	5402	12410	11534
32136.15925	1	271815.5	493480	488808	1861.5	7482.5	7008	2774	11862.5	10658
22003.50016	2	66028.5	106689.5	96688.5	474.5	1861.5	1679	1095	3175.5	3431
50016.22003	2	41719.5	69532.5	76869	0	766.5	620.5	474.5	1058.5	1569.5
18548.22003	2	237396	318499	283933.5	1569.5	5110	5511.5	3285	9928	9636
22003.18548	2	202356	220022	236629.5	876	2299.5	1861.5	1825	4161	3978.5
10986.14493	2	229293	216153	213598	1606	2664.5	474.5	2409	2993	474.5
14493.10986	2	228964.5	222029.5	193450	1204.5	1204.5	1204.5	1679	1533	1533
11000.14493	2	297073.5	309520	289262.5	1204.5	2409	2007.5	1679	2336	2810.5
14493.11000	2	287766	280940.5	266961	1752	3613.5	1934.5	3139	3723	474.5
14368.16183	2	864867.5	977433.5	927136.5	3759.5	7701.5	6570	3358	4161	2956.5
16183.10991	2	1084123	1130952.5	1133799.5	4964	8322	7847.5	4562.5	4234	3029.5
10995.16184	2	1309109	1076348.5	1089196.5	5183	6314.5	5657.5	5657.5	4526	4124.5
16184.16185	2	1300641	1132485.5	1082918.5	5511.5	7190.5	6059	5657.5	4927.5	4526
10734.31666	2	918230.5	754966	771354.5	2226.5	1569.5	1642.5	4380	3321.5	3321.5
31666.10736	2	924216.5	789495	803547.5	1898	1569.5	1569.5	4380	3321.5	3321.5
10738.10732	2	805518.5	801868.5	806102.5	1277.5	1606	1277.5	2956.5	2409	2080.5
10732.10741	2	853333.5	828513.5	833477.5	1679	1606	1277.5	3358	2482	2080.5
10782.60840	2	147095	49056	46720	401.5	0	0	0	0	0
60840.10782	2	109901.5	31937.5	30477.5	0	0	0	0	0	0
10739.60840	2	86943	28725.5	24966	0	0	0	0	0	0
60840.10739	2	124209.5	125633	100302	328.5	401.5	401.5	0	0	0
11014.25002	2	63619.5	54859.5	53290	0	0	0	0	0	0
25002.11014	2	37996.5	37923.5	36463.5	0	0	0	0	0	0
11010.25002	2	39091.5	39675.5	37887	0	0	328.5	0	0	0
25002.11010	2	66320.5	57487.5	55443.5	0	0	0	0	0	0
10781.95325	2	186150	107675	104645.5	328.5	0	0	0	0	0
95325.10781	2	214510.5	218708	212320.5	0	401.5	401.5	0	0	0
10739.95325	2	224073.5	311819.5	275867	803	3358	3212	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
95325.10739	2	270136.5	178120	186807	803	949	876	0	0	0
10739.95326	2	118333	101981	103149	401.5	474.5	474.5	0	0	0
95326.10739	2	75518.5	128407	107967	328.5	1277.5	1204.5	0	0	0
10989.95326	2	77380	145708	120158	401.5	1606	1204.5	0	0	0
95326.10989	2	99316.5	105850	107675	401.5	401.5	474.5	0	0	0
11014.60850	2	9380.5	51757	44931.5	0	0	0	0	0	0
60850.11014	2	3905.5	2737.5	1679	0	0	0	0	0	0
11015.25000	2	363905	371716	386608	1679	2555	2883.5	2080.5	1679	1752
25000.11015	2	218197	293569.5	292255.5	401.5	803	803	0	474.5	401.5
14405.25000	2	325288	399967	398762.5	803	1204.5	2007.5	0	0	0
25000.14405	2	448001	446796.5	433255	2007.5	2883.5	3212	2409	1752	1752
11010.62500	2	49165.5	34711.5	30076	0	0	0	0	0	0
62500.11010	2	50005	44201.5	53217	0	0	328.5	0	0	0
10782.62500	2	59166.5	47669	56356	0	0	401.5	0	0	0
62500.10782	2	57779.5	57086	50954	0	0	0	0	0	0
10784.25001	2	133882	135524.5	168046	474.5	803	949	0	0	0
25001.10784	2	197939.5	229512	231118	474.5	1752	2080.5	0	0	0
10782.29001	2	381461.5	453293.5	457418	876	2956.5	3029.5	73	73	73
29001.10782	2	225095.5	235461.5	287364.5	876	1277.5	1752	0	0	0
25001.29001	2	130451	135816.5	169725	474.5	474.5	949	0	0	0
29001.25001	2	205276	240717.5	242250.5	474.5	1752	2080.5	0	0	0
29002.11010	2	49056	82709	49129	401.5	1277.5	803	0	0	0
11007.29002	2	--	85738.5	33762.5	--	1277.5	474.5	--	0	0
10993.95326	2	50698.5	53582	52414	328.5	401.5	401.5	0	0	0
95326.10993	2	70262.5	61977	57268.5	474.5	401.5	401.5	0	0	0
29001.29002	2	1715.5	7811	28068.5	0	0	401.5	0	0	0
29002.29001	2	4854.5	6132	8212.5	0	0	0	0	0	0
29002.95607	2	1095	4416.5	3650	0	0	0	0	0	0
95607.29002	2	2555	5073.5	4307	0	0	0	0	0	0
60850.95607	2	2628	5475	4380	0	0	0	0	0	0
95607.60850	2	1095	4562.5	4051.5	0	0	0	0	0	0
95326.95406	2	12921	16242.5	12045	0	0	0	0	0	0
95406.95326	2	33251.5	28944.5	27338.5	0	0	0	0	0	0
29001.95406	2	21754	16279	13724	0	0	0	0	0	0
95406.29001	2	2920	5876.5	1423.5	0	0	0	0	0	0
10467.17553	3	6113859.5	5213441	5846752.5	174798.5	235206	271268	563268	688828	773435
17553.20054	3	636961.5	3312156	3714459	18578.5	149577	172170.5	58692	437671.5	491436
20054.10469	3	816724	568013	637545.5	23141	25696	29528.5	75080.5	75117	84461

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
10987.27750	2	208816.5	217138.5	138590.5	474.5	2409	876	876	3212	803
27750.14366	2	178266	185164.5	117968	474.5	2263	730	876	2409	803
10468.20053	3	2129154.5	3497795	3883235	56502	165235.5	181843	171221.5	485413.5	526549
20053.10409	3	5094414.5	5570958.5	6184888.5	134539	263128.5	289737	410661.5	773362	838952.5
10410.95610	3	3120786.5	2738704.5	2953251.5	67817	100667	107821	208451.5	333573.5	360510.5
95610.14392	3	4243380.5	3745082.5	4039053.5	92126	137933.5	147934.5	283276.5	456104	493261
14410.15815	2	132166.5	181113	179580	2153.5	3102.5	2628	1022	1569.5	1496.5
15815.14410	2	231483	191004.5	217175	3577	4124.5	3029.5	3029.5	2920	2774
14487.15815	2	247141.5	204290.5	231738.5	3978.5	4270.5	3029.5	3029.5	2993	3102.5
15815.14487	2	141255	193231	191880.5	2153.5	3102.5	2774	1022	1642.5	1569.5
10733.95690	2	69131	78840	49567	73	73	73	219	73	73
95690.10733	2	44420.5	112420	111726.5	73	146	474.5	146	620.5	474.5
95692.95698	2	7811	30696.5	9563	0	0	0	0	0	0
95698.95692	2	7482.5	44274.5	63400.5	0	0	328.5	0	0	328.5
95645.95646	2	3504	5694	1423.5	0	0	0	0	0	0
95646.95645	2	5876.5	7701.5	2007.5	0	0	0	0	0	0
16184.95698	2	87819	120705.5	148007.5	0	401.5	328.5	0	401.5	474.5
95698.16184	2	10256.5	33872	9490	0	0	0	0	0	0
16183.95645	2	125596.5	185493	18140.5	474.5	3066	401.5	0	1204.5	0
95645.16183	2	65006.5	90483.5	24199.5	401.5	1204.5	328.5	0	401.5	0
95649.95703	2	10329.5	11278.5	22119	0	0	0	0	0	0
95703.95649	2	474.5	9672.5	10366	0	0	0	0	0	0
95648.95704	2	1131.5	11972	12191	0	0	0	0	0	0
95704.95648	2	1752	5292.5	14563.5	0	0	0	0	0	0
31975.95666	2	120924.5	105047	124647.5	0	0	328.5	0	0	0
95666.31975	2	4161	43617.5	68948.5	0	73	0	0	401.5	0
11009.86301	2	27740	42230.5	36609.5	328.5	474.5	474.5	0	0	0
86301.11008	2	40186.5	71905	63656	328.5	474.5	474.5	0	0	0
17039.95623	2	18834	77015	67415.5	0	1022	1022	73	2445.5	2044
95623.17039	2	54713.5	87198.5	112201	474.5	3723	2080.5	949	7847.5	4234
17039.95624	2	28981	32047	32120	1277.5	2883.5	2883.5	4234	6789	6716
95624.17039	2	32521.5	35003.5	35003.5	1606	2883.5	2883.5	4234	6716	6716
11015.23594	2	229913.5	310761	315944	474.5	803	803	0	474.5	401.5
23594.11015	2	464134	494465.5	507313.5	1679	2956.5	3285	2080.5	1752	1752
11013.23594	2	144613	193559.5	195713	474.5	803	803	474.5	474.5	876
23594.11013	2	103295	145890.5	148664.5	0	401.5	474.5	0	73	328.5
11003.23594	2	110741	72489	78475	401.5	474.5	474.5	0	0	0
23594.11003	2	51501.5	55261	56246.5	0	0	0	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
11017.11011	2	104134.5	146584	144832	401.5	474.5	803	0	0	0
11012.11054	2	322222	281086.5	267618	474.5	401.5	401.5	474.5	547.5	547.5
11054.11012	2	104207.5	113880	108076.5	73	0	0	401.5	0	0
14493.14507	2	31426.5	41135.5	44055.5	0	328.5	328.5	401.5	803	876
14507.14493	2	20367	29492	32521.5	0	0	0	474.5	0	0
10998.14507	2	15914	10512	11059.5	0	0	0	0	0	0
14507.10998	2	16169.5	53180.5	52414	0	474.5	474.5	0	1423.5	1423.5
14510.15796	2	2518.5	42303.5	21863.5	73	730	730	0	803	803
15796.14510	2	4197.5	47997.5	59349	0	876	949	0	1679	1204.5
14510.14511	2	10402.5	22484	71795.5	0	401.5	474.5	73	1204.5	1204.5
14511.14510	2	0	438	0	0	0	0	0	0	0
14511.14512	2	11424.5	31280.5	92345	0	474.5	474.5	73	1204.5	1277.5
14512.14511	2	0	839.5	328.5	0	0	0	0	0	0
14367.14512	2	0	0	0	0	0	0	0	0	0
14512.14367	2	33580	34711.5	140598	3942	474.5	803	401.5	1204.5	1277.5
14493.14510	2	12191	32375.5	70262.5	0	1131.5	1131.5	401.5	328.5	1131.5
14510.14493	2	9818.5	14235	13651	146	693.5	1934.5	0	0	0
14400.18553	1	313827	0	0	0	0	0	401.5	0	0
14366.10469	2	--	--	--	--	--	--	--	--	--
50017.95697	2	295978.5	309045.5	307038	547.5	474.5	474.5	876	803	803
95697.50017	2	173922.5	297037	270976	401.5	401.5	401.5	547.5	949	474.5
50018.95697	2	153847.5	264296.5	267216.5	401.5	401.5	401.5	474.5	547.5	401.5
95697.50018	2	267983	288021.5	286780.5	474.5	474.5	474.5	876	803	803
95688.50017	2	91651.5	331347	295759.5	73	401.5	73	0	401.5	0
16187.95665	2	56903.5	247762	255281	0	146	73	0	73	0
95665.95688	2	87636.5	340362.5	326346.5	73	73	73	0	73	328.5
95689.16186	2	150562.5	423181	250061.5	73	949	146	73	1277.5	0
16188.95689	2	67707.5	179142	175893.5	0	401.5	73	0	73	0
18548.95686	2	182828.5	202794	212649	328.5	401.5	474.5	474.5	803	547.5
95686.18548	2	127969	122238.5	98185	0	474.5	474.5	474.5	1350.5	949
14361.95686	2	49311.5	57268.5	52195	0	0	0	0	401.5	0
95686.14361	2	56173.5	65225.5	66795	0	0	0	0	0	0
14375.95706	2	--	269552.5	259843.5	--	949	876	--	1825	1752
95706.11007	2	--	323061.5	310578.5	--	1277.5	949	--	2153.5	1825
11008.95708	2	--	463112	446614	--	1679	1679	--	2153.5	1350.5
95708.14374	2	--	417377.5	398762.5	--	1679	1350.5	--	2153.5	1350.5
14375.95705	2	3102.5	19053	13614.5	0	0	0	0	0	0
95705.14375	2	48289.5	59641	56502	0	401.5	401.5	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
60850.95705	2	37230	55188	49165.5	0	401.5	0	0	0	0
95705.60850	2	12446.5	21681	22192	0	0	0	0	0	0
25000.95649	2	14819	15804.5	20951	0	0	0	0	0	0
95649.25000	2	4781.5	10804	11351.5	0	0	0	0	0	0
60850.95649	2	9161.5	12811.5	13797	0	0	0	0	0	0
95649.60850	2	20586	21425.5	22265	0	0	0	0	0	0
27630.95660	2	419713.5	430444.5	426539	1277.5	2482	2226.5	1423.5	1825	1825
95660.10989	2	419713.5	421794	418217	1277.5	2153.5	2226.5	1423.5	1825	1825
17016.95646	2	86359	147204.5	171878.5	474.5	474.5	876	0	0	0
95646.17016	2	74058.5	122567	138408	328.5	949	1277.5	0	0	0
11004.95646	2	81577.5	132823.5	152570	328.5	949	1277.5	0	0	0
95646.11004	2	93768.5	158446.5	188632	474.5	474.5	876	0	0	0
17270.95699	2	331712	400259	419640.5	876	2153.5	2080.5	1350.5	1752	1350.5
95699.11004	2	335946	392776.5	381169.5	876	1752	1752	949	2153.5	1022
95690.10994	2	127421.5	138846	139649	401.5	474.5	474.5	474.5	474.5	474.5
10992.95690	2	683973.5	787159	775077.5	1752	2153.5	2226.5	3504	3577	3248.5
95691.10995	2	557610.5	561552.5	605024	1277.5	1350.5	1350.5	2299.5	2628	2299.5
95692.95691	2	109755.5	120012	132312.5	401.5	401.5	474.5	401.5	474.5	474.5
10994.95692	2	109828.5	110449	115778	401.5	401.5	401.5	401.5	474.5	474.5
95700.10987	2	166914.5	160855.5	128261	474.5	876	803	876	1204.5	803
95696.95697	1	62743.5	77380	71905	73	73	73	146	73	73
95697.95696	1	34602	25185	41172	219	73	146	0	0	0
95670.95700	2	184836	174287.5	142934	474.5	876	876	1204.5	1204.5	1131.5
10986.95663	2	135269	148153.5	129319.5	401.5	803	876	803	803	1131.5
95663.95670	2	154139.5	143299	115960.5	474.5	876	328.5	876	1204.5	803
95664.10986	2	123370	132203	129721	474.5	1533	0	1131.5	1460	0
95695.95698	2	620.5	1241	0	0	0	0	0	0	0
95698.95695	2	20440	19564	21060.5	0	0	0	0	0	0
14369.95655	2	112931	120669	107018	474.5	1533	474.5	1204.5	2591.5	876
95655.95664	2	261997	250061.5	226300	1204.5	2336	401.5	2409	3394.5	0
95669.14512	2	18067.5	31244	62232.5	3942	4964	2883.5	0	0	0
14371.95669	2	3723	7263.5	15330	803	1204.5	474.5	0	0	0
50015.95685	1	8796.5	10402.5	11169	474.5	73	73	1277.5	146	146
95685.50015	1	9964.5	10402.5	11169	474.5	73	73	1277.5	146	146
10733.95693	2	136364	142861	129064	401.5	73	73	547.5	401.5	73
95693.10733	2	45807.5	45260	37522	0	0	0	73	0	0
95690.95691	2	0	73	0	0	0	0	0	0	0
95691.95690	2	1971	10658	15950.5	0	0	0	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

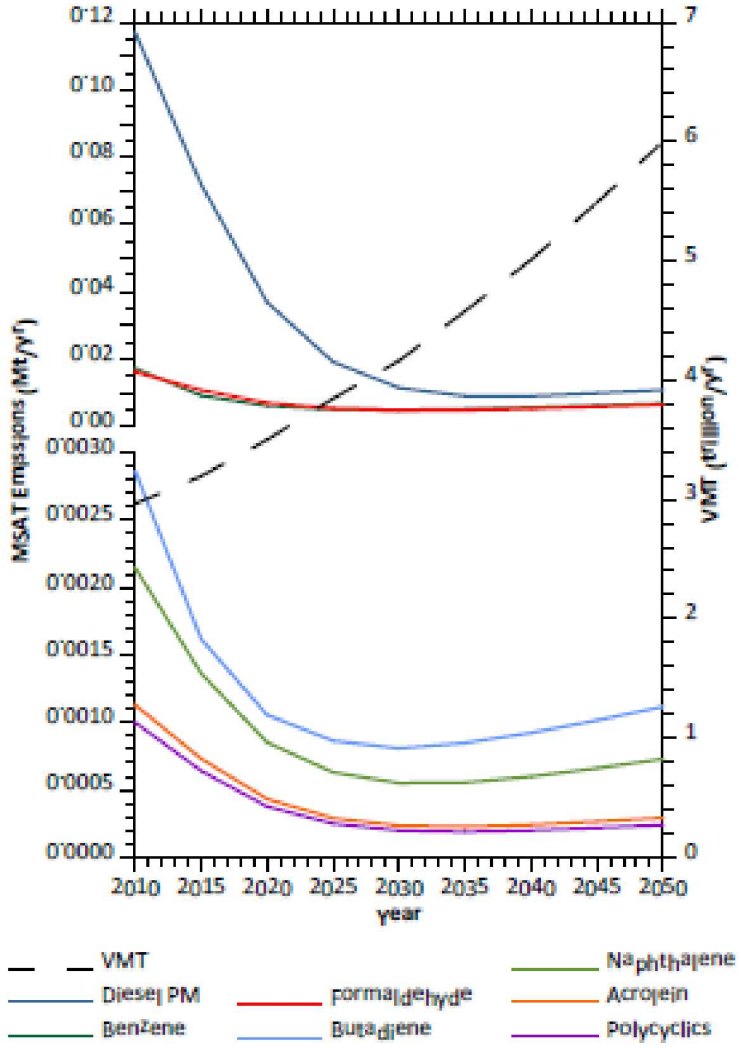
Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
27630.95699	2	4708.5	3504	0	0	0	0	0	0	0
95699.27630	2	24272.5	32193	29200	0	474.5	401.5	0	0	0
95645.95699	2	54859.5	51319	9855	0	730	0	0	328.5	0
95699.95645	2	9599.5	12994	3613.5	0	0	0	0	0	0
95672.95705	2	12629	20184.5	22338	0	0	0	0	0	0
95705.95672	2	0	22046	20367	0	0	0	0	0	0
95706.95708	2	--	0	0	--	0	0	--	0	0
95708.95706	2	--	20184.5	22338	--	0	0	--	0	0
95672.95706	2	0	22447.5	20768.5	0	0	0	0	0	0
95706.95672	2	13030.5	20732	22812.5	0	0	0	0	0	0
95703.95704	2	16279	12848	24820	0	0	0	0	0	0
95704.95703	2	1131.5	11972	12191	0	0	0	0	0	0
95703.95705	2	0	0	0	0	0	0	0	0	0
95705.95703	2	2664.5	0	0	0	0	0	0	0	0
95686.95687	2	90155	96761.5	79898.5	0	401.5	0	0	401.5	0
95687.95686	2	52669.5	41245	10621.5	0	328.5	0	0	474.5	474.5
95688.95689	2	1350.5	219	0	0	0	0	0	0	0
95689.95688	2	25842	13614.5	73	0	0	0	0	0	0
95687.95689	2	40880	28616	2883.5	0	0	0	0	0	0
95689.95687	2	16607.5	10402.5	3650	0	0	0	0	0	0
95700.95655	2	4891	620.5	8139.5	0	0	0	0	0	0
95655.95701	2	46756.5	73182.5	70116.5	401.5	2591.5	1606	474.5	5657.5	2883.5
95701.95655	2	52304.5	38252	10877	0	0	0	0	401.5	0
95667.95701	2	78840	100375	69532.5	474.5	1898	1496.5	803	3796	2993
95701.95667	2	101470	109646	129757.5	547.5	4854.5	2482	1752	10986.5	6241.5
95623.95667	2	25550	62889.5	49348	328.5	949	949	474.5	1971	1569.5
95667.95623	2	40040.5	67744	78292.5	401.5	2920	1606	876	5986	2956.5
14507.95658	2	23177.5	1898	839.5	0	0	0	0	0	0
95658.14507	2	15549	15220.5	11935.5	0	474.5	474.5	0	620.5	620.5
95658.95701	2	41719.5	30039.5	8176	0	0	0	0	328.5	0
95701.95658	2	29236.5	51903	29054	0	547.5	547.5	328.5	1423.5	1022
10986.95658	2	67379	35989	39967.5	0	0	0	0	0	0
95658.10986	2	68182	20257.5	28981	328.5	401.5	401.5	474.5	876	730
95664.95663	2	27521	12738.5	4672	0	0	0	0	0	0
95647.95661	2	0	0	0	0	0	0	0	0	0
95661.95647	2	11351.5	0	0	0	0	0	0	0	0
11006.95661	2	47085	26535.5	26535.5	0	0	0	0	0	0
95661.11006	2	38434.5	21608	21608	0	0	0	0	0	0

Table A-3: Build Alternative 2-Way Wheeler Average Annual Vehicle Miles Traveled Summary

Link_ID [2]	Area ID [2]	Average Annual Vehicle Miles Traveled (veh-miles/yr)								
		Auto			Medium Truck			Heavy Truck		
		2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]	2015 [4]	2040 No Build [5]	2040 Build [6]
Total		**196167899.5**	**205515221**	**208150192.5**	**2693663.5**	**4451284.5**	**4579436**	**6602996**	**10433415.5**	**10893498**
95694.95696	1	9088.5	32010.5	28433.5	0	0	0	0	0	0
95666.95695	2	2956.5	3759.5	1241	0	0	0	0	0	0
95695.95666	2	73	23323.5	12483	0	0	0	0	0	0
95666.95697	2	73	7665	1533	0	0	0	0	0	0
95697.95666	2	14928.5	12775	41902	0	0	0	0	0	0
10779.95696	1	10950	11278.5	9855	0	0	0	0	0	0
95696.10779	1	119428	148847	135597.5	73	0	0	0	0	0
10777.95696	1	125012.5	140269.5	122932	73	0	0	0	0	0
16187.95695	2	0	1204.5	0	0	0	0	0	0	0
95695.16187	2	103331.5	69934	92491	0	0	0	0	73	0
95665.95666	2	73	17520	56064	0	73	0	0	73	0
95666.95665	2	125815.5	107784.5	151438.5	0	0	328.5	0	0	328.5
14405.95704	2	501327.5	544908.5	519504.5	1752	2153.5	2153.5	3175.5	3504	3102.5
95704.14375	2	267764	282619.5	272655	876	1277.5	876	1423.5	1825	1752
95648.14406	2	760696.5	931005.5	917829	2226.5	4307	4161	2445.5	3577	2847
14374.95648	2	371351	466652.5	451578	876	2080.5	1679	1350.5	2153.5	1350.5
95693.27696	1	94900	206444	222358	0	73	146	0	73	73
10728.95693	1	19673.5	39018.5	44895	0	0	0	0	0	0
95693.10728	1	63072	59604.5	58546	0	0	0	0	0	0
16186.95665	2	--	--	23396.5	--	--	0	--	--	0
95665.16186	2	--	--	37303	--	--	0	--	--	0
16186.95687	2	--	--	--	--	--	--	--	--	--
95687.16186	2	--	--	--	--	--	--	--	--	--
95709.14363	2	--	--	232432	--	--	547.5	--	--	474.5
16186.95709	2	--	--	244039	--	--	547.5	--	--	474.5
16187.95709	2	--	--	0	--	--	0	--	--	0
95709.16187	2	--	--	25513.5	--	--	0	--	--	0
95701.95709	2	--	--	--	--	--	--	--	--	--
95709.95701	2	--	--	--	--	--	--	--	--	--
16183.16184	2	16899.5	48691	45114	0	401.5	328.5	0	401.5	328.5
16184.16183	2	0	365	73	0	0	0	0	0	0
16186.14363	2	339742	346677	--	474.5	949	--	401.5	949	--
14369.95687	2	150343.5	214729.5	--	0	803	--	401.5	2007.5	--
95687.14369	2	108368.5	269151	--	0	73	--	0	0	--
14367.14366	2	49348	62269	48691	6095.5	7081	4708.5	0	0	0
14367.10469	2	1036709.5	441394.5	333026	14782.5	6898.5	7592	7446	2482	2080.5

Appendix B MSAT Incomplete Information

Figure 1:
PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA's MOVES2010b MODEL



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

CEQ Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

Sec. 1502.22 INCOMPLETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant lo reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

1. A statement that such information is incomplete or unavailable;
2. A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
3. A summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
4. The agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

(c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA https://www.epa.gov/iris/). Each report contains assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents.

Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts-each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282).As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for DPM. The EPA (http://www.epa.gov/risk/basicinfonnation.htm#g} and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of DPM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts.

Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Because of the limitations cited, a discussion such as the example provided in this appendix (reflecting any local and project-specific circumstances) should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ)

regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047 are available to provide guidance and technical assistance and support. (http://www.epa.gov/risk/basicinfonnation.htm#q) and the HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of DPM in ambient settings.

Appendix C MSAT Analysis Results

Table C- 1
Project Summary
I-5 Rose Quarter Improvement Project

Pollutant	MOVES Pollutant ID	Emissions Estimate (tons/yr)											
		Road Type ID											
		4 (Urban Restricted)				5 (Urban Unrestricted)				Total			
		2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler	2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler	2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler
Greenhouse Gases (GHG)													
Total Gaseous Hydrocarbons	1	47.9040875	14.91092226	12.80445911	12.79410928	69.19301877	16.87081362	16.32432515	17.3477809	117.0971063	31.78173588	29.1288	30.1419
Total Energy Consumption	91	2.773737108	2.454358487	2.328023491	2.326504642	3.254912317	2.368164342	2.364675014	2.44915819	6.028649425	4.822522829	4.6927	4.7757
NO_x	5	6.560560206	2.297721962	2.017005577	2.014471816	9.783506295	2.328397671	2.30565719	2.38157245	16.3440665	4.626119632	4.3227	4.3960
N_2O	6	1.264671665	0.849357145	0.70651297	0.706448595	2.060101644	1.054593803	1.010187101	1.09662064	3.324773309	1.903950949	1.7167	1.8031
CO_2	90	211780.0785	187999.2372	178441.3553	178326.7879	247388.9269	180282.1795	179950.2458	186374.572	459169.0054	368281.4167	358391.6011	364701.3602
CO_2e	98	212317.4089	188309.1426	178701.6719	178587.205	248243.8072	180653.8448	180308.3319	186760.32	460561.2161	368962.9874	359010.0038	365347.5246
CO_2e (Metric Tons)	98	192611.1134	170831.1806	162115.4297	162011.5872	225202.9937	163886.4112	163572.9672	169426.112	417814.1071	334717.5918	325688.3969	331437.6991
Mobile Source Air Toxics (MSAT)													
Non-methane HC	79	41.40649412	12.75758746	10.93438452	10.9268008	59.42772859	14.58093334	14.04776246	14.9971769	100.8342227	27.3385208	24.98214698	25.92397765
VOC	87	43.48091087	13.27879472	11.38823631	11.38077644	61.36869378	15.1909795	14.62229985	15.6257098	104.8496046	28.46977422	26.01053616	27.00648627
Primary PM_{10} (DPM)	100	8.696342749	1.546291312	1.497356228	1.497818924	4.12848755	0.500201048	0.412527081	0.42467012	12.8248303	2.04649236	1.909883309	1.922489047
Primary Exhaust $PM_{2.5}$	110	8.000619637	1.422583621	1.377563344	1.377988823	3.798196355	0.460183918	0.37952351	0.3906954	11.79881599	1.882767539	1.757086855	1.768684218
Elemental Carbon	112	5.289666292	0.922746695	0.90500232	0.905158229	2.584287421	0.287124919	0.230724846	0.23661727	7.873953713	1.209871614	1.135727166	1.141775503
Organic Carbon	111	2.307576371	0.230204615	0.214945318	0.214845738	1.833668501	0.201212414	0.199376016	0.20587618	4.141244871	0.431417029	0.414321334	0.420721922
Sulfate Particulate	115	0.678430871	0.70094453	0.662451378	0.662801116	0.341031968	0.255741587	0.222617112	0.23045095	1.019462839	0.956686117	0.885068491	0.893252066
Composite - NonECPM	118	6.268944324	1.173989373	1.105864494	1.106153176	3.987261804	0.591455675	0.548583814	0.5671709	10.25620613	1.765445048	1.654448308	1.673324073
H_2O - Aerosol	119	0	0	0	0	0	0	0	0	0	0	0	0
Acetaldehyde	26	0.767256849	0.185860176	0.172957608	0.172921297	0.754142448	0.089149262	0.079407006	0.08353888	1.521399297	0.3	0.3	0.3
Acrolein	27	0.10025305	0.0162657	0.015118356	0.015115077	0.080836333	0.008015708	0.007176499	0.00754211	0.181089382	0.0	0.0	0.0
Benzene	20	1.054290571	0.162545543	0.136954029	0.13685049	1.761860117	0.238242727	0.23794767	0.24715414	2.816150688	0.4	0.4	0.4
1,3-Butadiene	24	0.120511571	0	0	0	0.178895702	0	0	0	0.299407273	0.0	0.0	0.0
Ethylbenzene	41	0.604778659	0.20170179	0.171086974	0.170965922	0.995900449	0.248529049	0.240238009	0.25680018	1.600679107	0.5	0.4	0.4
Formaldehyde	25	1.389994767	0.151499499	0.138336313	0.138293564	1.247337682	0.104976668	0.099124676	0.10308847	2.637332449	0.3	0.2	0.2
Naphthalene gas	185	0.156690239	0.007726875	0.006779043	0.006775482	0.154823363	0.008732594	0.008652668	0.00891711	0.311513601	0.0	0.0	0.0
Naphthalene particle	23	7.3944E-05	1.63835E-05	1.51423E-05	1.51224E-05	0.000135093	2.13088E-05	2.17151E-05	2.2412E-05	0.000209037	0.0	0.0	0.0
Total Naphthalene	--	0.156764183	0.007743258	0.006794185	0.006790605	0.154958456	0.008753903	0.008674383	0.00893952	0.311722638	0.0	0.0	0.0
Polycyclic Organic Matter (POM)													
Total POM		0.069411037	0.003257444	0.002887423	0.002885216	0.064656428	0.003923443	0.0039242	0.00404499	0.134067465	0.01	0.01	0.01
Dibenzo(a,h)anthracene particle	68	3.6969E-05	2.45494E-06	2.26352E-06	2.26009E-06	3.36049E-05	3.43811E-06	3.51783E-06	3.6304E-06	7.05739E-05	5.89305E-06	5.78135E-06	5.89051E-06
Dibenzo(a,h)anthracene gas	168	0	0	0	0	0	0	0	0	0	0	0	0
Fluoranthene particle	69	0.003208326	1.69496E-05	1.5646E-05	1.56238E-05	0.00156897	2.29277E-05	2.34158E-05	2.4166E-05	0.004777296	3.98773E-05	3.90618E-05	3.97898E-05
Fluoranthene gas	169	0.005004304	0.000171801	0.000148375	0.000148284	0.00480461	0.000222916	0.000223	0.00022941	0.009808914	0.000394717	0.000371375	0.000377694
Acenaphthene particle	70	0	0	0	0	0	0	0	0	0	0	0	0
Acenaphthene gas	170	0.004067017	0.000166159	0.000146865	0.000146793	0.003755362	0.000174484	0.000171904	0.00017735	0.007822379	0.000340643	0.000318769	0.00032414
Acenaphthylene particle	71	2.18574E-05	4.56257E-06	4.2103E-06	4.2042E-06	4.01476E-05	6.23347E-06	6.36962E-06	6.5736E-06	6.2005E-05	1.0796E-05	1.05799E-05	1.07778E-05
Acenaphthylene gas	171	0.009436575	0.00053272	0.000458304	0.000458012	0.01094444	0.00071298	0.000714648	0.00073493	0.020381015	0.0012457	0.001172952	0.001192938
Anthracene particle	72	0.000840142	4.94232E-06	4.56555E-06	4.55934E-06	0.000413103	6.53508E-06	6.66586E-06	6.8796E-06	0.001253245	1.14774E-05	1.12314E-05	1.14389E-05
Anthracene gas	172	0.003232705	0.000113188	9.85584E-05	9.85024E-05	0.003035088	0.000137038	0.000136458	0.0001405	0.006267793	0.000250227	0.000235016	0.000239002
Benz(a)anthracene particle	73	0.001822701	4.42377E-05	4.08405E-05	4.0783E-05	0.001116033	5.96007E-05	6.08563E-05	6.2806E-05	0.002938733	0.000103838	0.000101697	0.000103589
Benz(a)anthracene gas	173	0.000575047	1.68801E-05	1.46007E-05	1.45919E-05	0.000527596	2.16304E-05	2.1621E-05	2.2246E-05	0.001102643	3.85106E-05	3.62218E-05	3.68377E-05
Benzo(a)pyrene particle	74	0.001127219	0.000105257	9.70495E-05	9.69022E-05	0.001232879	0.00014741	0.000150828	0.00015566	0.002360098	0.000252667	0.000247878	0.000252558
Benzo(a)pyrene gas	174	6.76816E-06	7.6923E-07	6.54081E-07	6.53621E-07	1.19685E-05	1.12361E-06	1.13211E-06	1.1631E-06	1.87367E-05	1.89284E-06	1.78619E-06	1.81674E-06
Benzo(b)fluoranthene particle	75	0.000434318	5.12782E-05	4.72798E-05	4.72083E-05	0.000548425	7.18143E-05	7.34795E-05	7.5831E-05	0.000982743	0.000123093	0.000120759	0.000123039
Benzo(b)fluoranthene gas	175	9.22357E-05	1.0483E-05	8.91374E-06	8.90748E-06	0.000163106	1.53125E-05	1.54283E-05	1.5851E-05	0.000255342	2.57955E-05	2.4342E-05	2.47584E-05
Benzo(g,h,i)perylene particle	76	0.001435304	0.000284809	0.000262602	0.000262204	0.002601977	0.000398871	0.000408119	0.00042118	0.004037281	0.00068368	0.000670721	0.000683385
Benzo(g,h,i)perylene gas	176	8.72043E-06	0	0	0	5.91781E-06	0	0	0	1.46382E-05	0	0	0
Benzo(k)fluoranthene particle	77	0.000278	5.12782E-05	4.72798E-05	4.72083E-05	0.000477366	7.18143E-05	7.34795E-05	7.5831E-05	0.000755366	0.000123093	0.000120759	0.000123039
Benzo(k)fluoranthene gas	177	9.22357E-05	1.0483E-05	8.91374E-06	8.90748E-06	0.000163106	1.53125E-05	1.54283E-05	1.5851E-05	0.000255342	2.57955E-05	2.4342E-05	2.47584E-05
Chrysene particle	78	0.001196127	3.61165E-05	3.33148E-05	3.32655E-05	0.000786744	4.9936E-05	5.10593E-05	5.2694E-05	0.001982872	8.60526E-05	8.4374E-05	8.59595E-05
Chrysene gas	178	0.000315101	1.68123E-05	1.43854E-05	1.43758E-05	0.000366127	2.346E-05	2.35747E-05	2.4232E-05	0.000681228	4.02724E-05	3.79601E-05	3.86081E-05
Fluorene particle	81	0.00140619	0	0	0	0.000638984	0	0	0	0.002045174	0	0	0
Fluorene gas	181	0.007103262	0.0003441	0.00030457	0.000304425	0.006809933	0.000356119	0.000350438	0.00036161	0.013913195	0.000700219	0.000655008	0.000666036
Indeno(1,2,3,c,d)pyrene particle	82	0.000574279	0.000107006	9.86628E-05	9.85132E-05	0.000993511	0.000149861	0.000153335	0.00015824	0.00156779	0.000256867	0.000251998	0.000256756
Indeno(1,2,3,c,d)pyrene gas	182	0	0	0	0	0	0	0	0	0	0	0	0
Phenanthrene particle	83	0.003372193	1.89921E-05	1.75815E-05	1.75607E-05	0.001640332	2.34352E-05	2.38089E-05	2.4574E-05	0.005012525	4.24273E-05	4.13903E-05	4.21347E-05

Pollutant	MOVES Pollutant ID	Emissions Estimate (tons/yr)											
		Road Type ID											
		4 (Urban Restricted)				5 (Urban Unrestricted)				Total			
		2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler	2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler	2017	2045 No Build	2045 2-Way Ramsay	2045 2-Way Wheeler
Phenanthrene gas	183	0.013200815	0.000942019	0.000835407	0.000835018	0.014131577	0.000955291	0.00093847	0.0009687	0.027332392	0.00189731	0.001773877	0.001803714
Pyrene particle	84	0.00460319	1.80475E-05	1.66528E-05	1.66286E-05	0.002212172	2.47093E-05	2.52518E-05	2.6061E-05	0.006815362	4.27567E-05	4.19047E-05	4.26892E-05
Pyrene gas	184	0.005919435	0.000186097	0.000159927	0.000159824	0.005633348	0.000251189	0.000251909	0.00025903	0.011552784	0.000437286	0.000411836	0.000418856