APPENDIX D

Qualitative Assessment of Cumulative Contribution of Health Impacts near Rail Lines in Auburn, Chico, Marysville, Redding, and Truckee, California

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Memorandum

Environmental Resources Management

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Re: Valero Crude by Rail Project

From: Jennifer Schulte, ERM
Cheri Velzy, ERM

cc: Lynn McGuire, ERM

Date: 19 June 2015

Subject: Qualitative Assessment of Cumulative Contribution of Health Impacts near Rail Lines in Auburn, Chico, Marysville, Redding, and Truckee, California

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This memorandum presents a qualitative analysis of potential cumulative health risk impacts from projected locomotive emissions from the Valero Crude by Rail project traveling between Roseville, California, and the Oregon and Nevada borders, and considers other sources of toxic air contaminants (TACs) near these rail lines. The California Environmental Quality Act (CEQA) Guidelines authorize qualitative as well as quantitative analyses of project impacts for the project alone, and for the impacts of the project combined with the impacts of projects having similar impacts. In this case, because of the lack of sufficient quantitative data for sources of TACs, this analysis employs a qualitative assessment of the project's combined health risk impacts.

BACKGROUND

A health risk assessment was provided in the 2014 Draft Environmental Impact Report (DEIR) for locations between the refinery and Roseville, California. This assessment included analysis of mobile source emissions (offsite locomotives) traveling between Benicia and Roseville, California. At the request of the City of Benicia, additional analysis of locomotive emissions impacts in five uprail locations between Roseville and the northern and eastern California borders are considered. The California locations selected are those along the rail route where the greater potential for cumulative impacts would be expected. They include Auburn, Chico, Marysville, Redding, and Truckee. These represent populated areas that may have sensitive receptors located in proximity to the rail lines between Roseville and the northern and eastern California borders where meterological data was available. The results of project-related locomotive emissions impacts on sensitive receptors in these locations are discussed in a separate memorandum entitled: *Methodology and Results for Project Health Risk Assessment at Project-Specific Uprail Locations between Roseville, California, and the Oregon and Nevada Borders.*

This memorandum discusses other sources near sensitive receptors at the five selected locations that could contribute to cumulative air quality impacts and health effects.

METHODOLOGY

Stationary Sources

The United States Environmental Protection Agency Federal Reporting System contains location and facility identification numbers for facilities that handle toxic compounds. This system includes those sources with reporting requirements based on the federal reporting threshold. This information system was queried to identify sources within 1,000 feet of the rail lines in locations subject to this cumulative qualitative risk assessment[1]. This list was further limited to exclude facilities that only reported solid and waterborne wastes since this analysis was focused on air emissions impacts. The North American Industry Classification System (NAICS) codes for these facilities provide a general idea of the facility type.

Roadways and Existing Rail Traffic

In addition to the project-related rail traffic, nearby major roadways and existing rail traffic contribute to the overall cumulative impact for nearby sensitive receptors. Rail traffic primarily generates diesel particulate matter (DPM) emissions from the combuston of diesel fuel. Motor vehicles emit an assortment of TACs and particulate matter associated with combustion of gasoline, diesel motor fuels, and tire and brake wear. Major roadways are present near the rail lines that would contribute to the overall health impacts of a sensitive receptor located near the rail lines. The level of contribution depends on the volume of traffic and the distance from the roadway to the sensitive receptor.

ANALYSIS

Source-specific TAC emission information is not consistently available for sources (nearby facilities, roadways, existing rail traffic) in the less populated California air districts. The subsections below summarize the types of nearby facilities and roadways

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[1] Identification of sources within 1,000 foot radius of a source is consistent with the approach used in the previous DEIR and methodology used in the BAAQMD's Updated CEQA Air Quality Guidelines, May 2012.

in the five locations, to give a general perspective of nearby emissions sources and types. The sources in each uprail area that would contribute to a cumulative impact are shown on Figures 1 through 5.

Marysville

The Marysville area has several minor sources of localized emissions that are commonly found in populated areas. These primarily include gas stations. Larger sources of emissions in Marysville include an electroplating facility, a ready-mix concrete facility, a rendering and meat processing facility, and a shelving unit and display case manufacturing facility. Stationary sources within 1,000 feet of the rail lines in Marysville are shown on Figure 1. The larger sources are labeled. In addition, State Route (SR)-20 and SR-70 are primary thoroughfares through Marysville and are likely substantial contributors to the cumulative risk at a sensitive receptor near the rail lines.

Chico

The Chico area has several minor sources of localized emissions that are commonly found in populated areas. These include auto body shops, gas stations, dry-cleaners, and telecommunications facilities housing standby generators, which are intermittent sources of DPM. Slightly larger sources of localized emissions include California State University-Chico (CSU-Chico), breweries, machinery repair and maintenance, motor vehicle manufacturing, pump and pump equipment manufacturing, a ready-mix concrete facility, wood cabinet manufacturing, and rail support activities. Stationary sources within 1,000 feet of Chico rail lines are shown on Figure 2. CSU-Chico is approximately 1,100 feet northeast of the rail line. The primary sources of cumulative risk in Chico would be diesel standby generators and roadway traffic. SR-32 runs parallel to the rail line, and is shown on Figure 2. SR-32 is a primary thoroughfare near Chico and is likely a substantial contributor to the cumulative risk at nearby receptors near the rail line.

Redding

The Redding area has several minor sources of localized emissions that are commonly found in populated areas. These primarily include auto body shops. Larger sources of emissions in Redding include a bulk terminal, engineered wood, fabricated structural steel, millwork, a ready-mix concrete facility, and sawmills. Stationary sources within 1,000 feet of the rail line in Redding are shown on Figure 3. SR-273 is immediately adjacent to the rail line, is a primary thoroughfare through Redding, and is likely a substantial contributor to the cumulative risk at nearby receptors. Interstate (I)-5 is more than 9,000 feet from the rail line. Based on information provided by the Bay Area Air

Quality Management District (BAAQMD) for I-80 near Fairfield, a major roadway that is far removed from a sensitive receptor would contribute a very minor, if any amount, to the cumulative risk at a sensitive receptor near that rail line.

Auburn

The Auburn area has several minor sources of localized emissions that are commonly found in populated areas. These include auto body shops, gas stations, and telecommunications facilities housing standby generators, which are intermittent sources of DPM. Slightly larger sources of localized emissions include electrical power generation, wood cabinet manufacturing, and a construction company. Stationary sources within 1,000 feet of the Auburn rail lines are shown on Figure 4. Two major roadways, I-80, a major truck route with high traffic volume, and SR-49, are also shown on Figure 4. These roadways and existing rail line traffic are substantial contributors to the cumulative risk at receptors near the rail lines.

Truckee

There were no stationary source facilities located within 1,000 feet of the rail line in Truckee. I-80 is a major truck route with high traffic volume that runs parallel to the rail line. SR-89 and SR-267 intersect the rail line in Truckee. The rail line and major roadways in Truckee are shown on Figure 5. These major roadways (I-80, SR-89 and SR-267) and existing rail traffic would contribute to a cumulative impact at a sensitive receptor near the rail line.

Emission Types

The NAICS code can give a general indication of the types of emissions that may occur for a given facility. Table 1 summarizes some of the major NAICS categories identified and typical emission types.

Table 1 NAICS Categories for Emission Profiles

Facility Type	Type of Emissions
Gasoline Dispensing Facilitiy	TACs (benzene, toluene, xylenes) associated with gasoline and diesel fuel emissions
Autobody Shop	PM[1] and TACs associated with paints and surface coating
Ready-Mix Concrete	PM and TACs (i.e., metals) from aggregate processing
Airport Operations	PM and TACs (combustion exhaust) from equipment used to operate the facility
Landfill	PM and various organic compounds from breakdown of material and equipment used to manage waste
Wastewater Treatment Plant	Various organic compounds from volatilization of compounds at liquid surface
Telecommunications	PM associated with intermittant operation of emergency diesel generators
Other Electric Power Generation	PM and various TACs in natural gas combustion associated with generation of power
Manufacturing	PM and various TACs used in the manufacturing process
Funeral Home	PM, formaldehyde, and metals
Rendering Facility	Ammonia
Postharvest Crop Activities	DPM from agricultural equpment
Freight Transportation Arrangement	DPM from trucks
Newspaper Facilities	PM and TACs from printing components
Brewery	PM
Coffee Roasting	PM

1. PM is used generically to represent DPM, respirable particulate matter less than 10 microns in diameter (PM_{10}), and inhalable particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), as all may be emitted to varying degrees.

SUMMARY

Point source and fugitive emissions from adjacent existing facilities, and emissions from nearby roadways and railroad locomotives contribute to a cumulative amount of particulate matter and TACs for sensitive receptors near these facilities, roadways, and rail lines. Because information for quantifying existing health risk conditions in these cities is limited, an accurate quantitative analysis that provides a quantitative magnitude or significance level is not feasible. Cumulative risk thresholds have not been established by the air quality management agencies in these uprail areas, nor has the quantitative contribution to cumulative impact from a majority of the existing sources been determined.

However, this qualitative analysis can present the project's contribution to the cumulative impact and evaluate whether or not that contribution is considerable. The considerable contributions of a project to a potential cumulative impact are determined by looking at the project's impact relative to the project-level thresholds. If a project's impact is less than the project-level significance threshold, then the project's contribution to combined effects in the relevant geographical area is not considerable.

Assembly Bill (AB) 2588 air toxics "hot spots" public notification thresholds of 10 in one million for cancer risk and 1.0 for chronic hazard index, which are applicable in these uprail counties (Butte, Feather River, Placer, and Shasta), provide a level below which public notification of risk is deemed unnecessary. Some of the subject air districts between Roseville and the California border have proposed project-specific risk thresholds of 10 in one million for cancer risk and 1.0 for chronic hazard index for CEQA purposes. The risk threshold values listed in AB 2588 are also equivalent to the BAAQMD's CEQA threshold level of 10 in one million for cancer risk and 1.0 for chronic hazard index, and have been used for both stationary and mobile sources. The same risk thresholds were used in the 2014 DEIR, and may be used for evaluating whether the project's contribution to the cumulative impact is considerable in these uprail locations. For reference, the BAAQMD's proposed cumulative threshold for combined cancer risk is 100 in one million, and for combined chronic hazard index is 10.0.[2]

The proposed increased rail activity from the project in these locations would contribute less than 10 in one million to any cumulative cancer risk and a chronic hazard index of less than 1.0 at sensitive receptors near subject rail lines in the selected uprail communities analyzed in this report. Therefore, the project would not itself have a cumulatively considerable health risk impact. As for the impacts of the project combined with those of other sources, an assessment of those cumulative impacts, given the lack of relevant and meaningful data, would be speculative. CEQA does not require speculation. Nevertheless, it is conservatively assumed for the purpose of this analysis that the combined effects of the project with the other sources identified above could have a potential significant and unavoidable (given federal preemption) cumulative (i.e., combined) health risk.

[2] The thresholds proposed in BAAQMD's 2010 CEQA Guidelines, though currently superseded by court order, are used by the City of Benicia in the 2014 DEIR, for the reasons stated therein. Moreover, BAAQMD's methodology for cumulative risk assessment is finalized and included in its 2012 CEQA Guidelines.

Figures

Project: 0274904
Date: 6/16/2015
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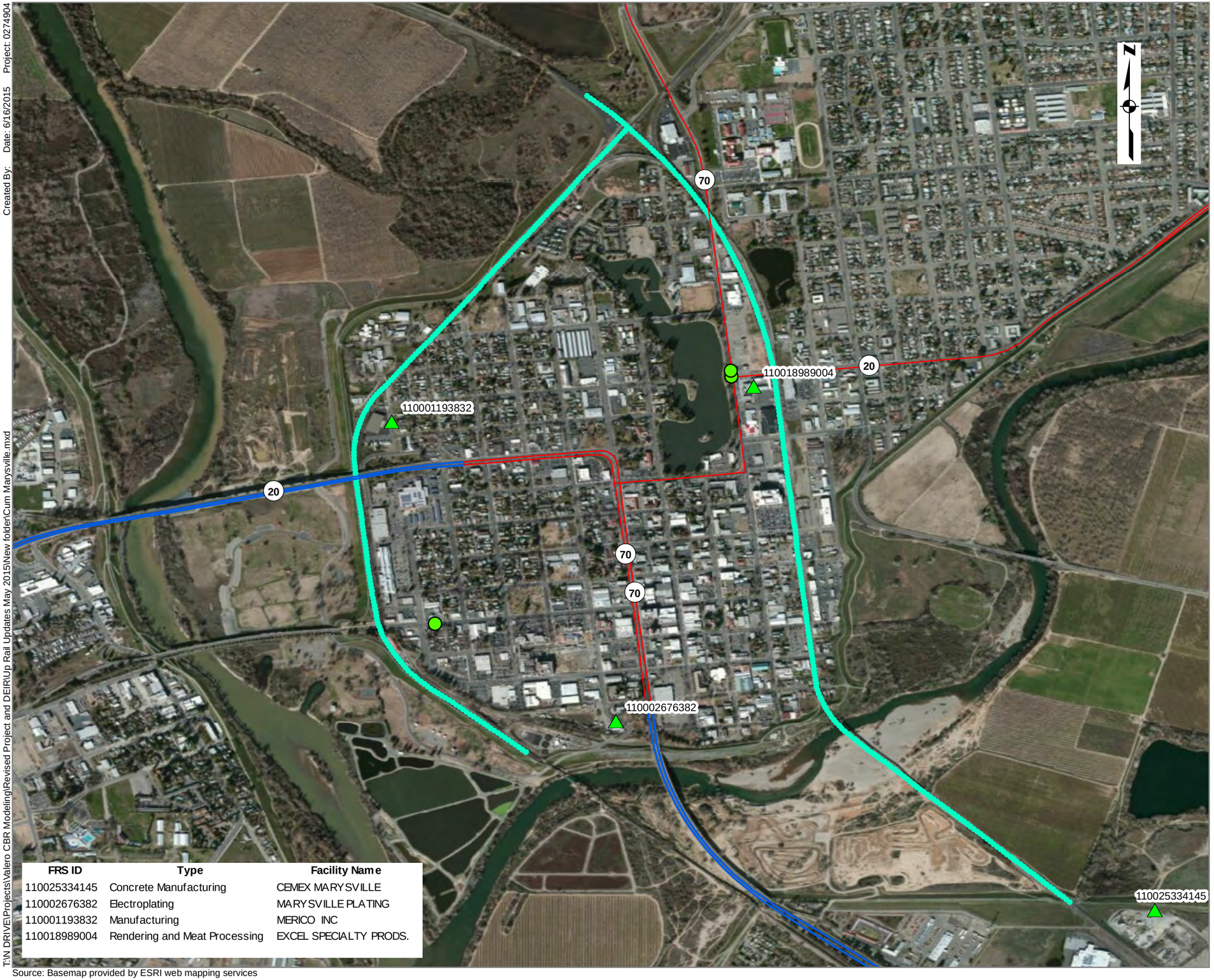

FRS ID	Type	Facility Name
110025334145	Concrete Manufacturing	CEMEX MARYSVILLE
110002676382	Electroplating	MARYSVILLE PLATING
110001193832	Manufacturing	MERICO INC
110018989004	Rendering and Meat Processing	EXCEL SPECIALTY PRODS.

Source: Basemap provided by ESRI web mapping services

0 625 1,250 2,500 Feet

Legend

Small Facility Type

- Gas Stations
- Large Facilities
- Marysville Rail Lines

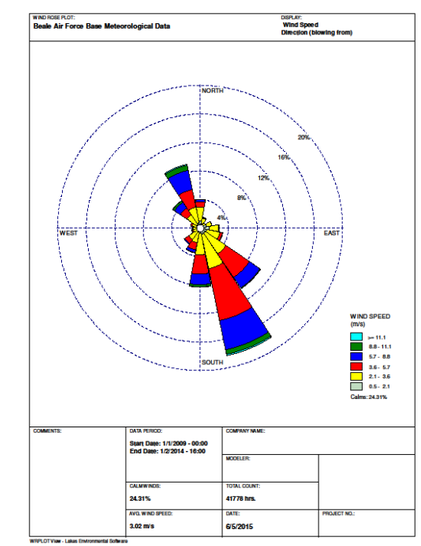

Figure 1
Marysville Rail Segments: Cumulative Stationary Sources

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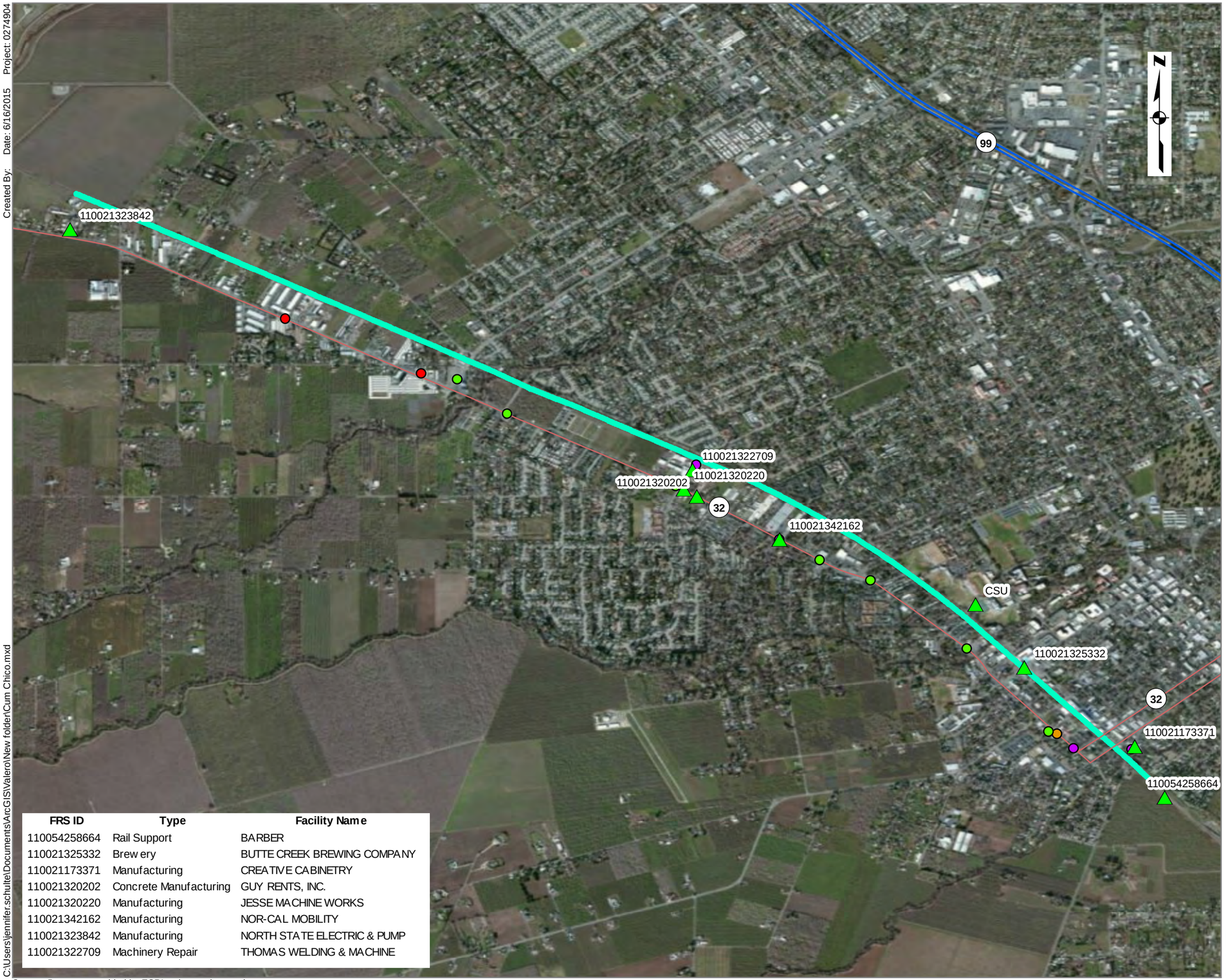

FRS ID	Type	Facility Name
110054258664	Rail Support	BARBER
110021325332	Brewery	BUTTE CREEK BREWING COMPANY
110021173371	Manufacturing	CREATIVE CABINETRY
110021320202	Concrete Manufacturing	GUY RENTS, INC.
110021320220	Manufacturing	JESSE MACHINE WORKS
110021342162	Manufacturing	NOR-CAL MOBILITY
110021323842	Manufacturing	NORTH STATE ELECTRIC & PUMP
110021322709	Machinery Repair	THOMAS WELDING & MACHINE

Source: Basemap provided by ESRI web mapping services

0 1,100 2,200 4,400 Feet

Legend

Small Facility Type

- Auto Body
- Drycleaning
- Gas Stations
- Telecommunications
- Large Facilities
- Chico Rail Line

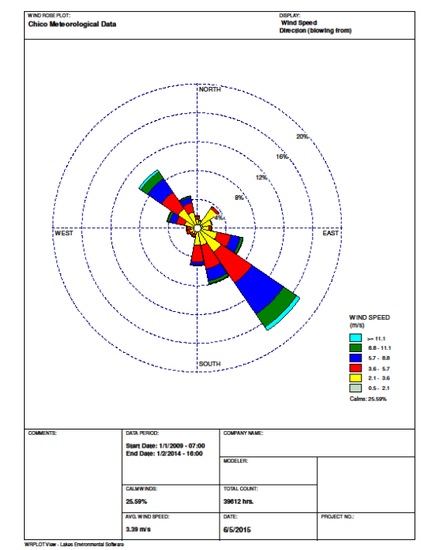

Figure 2
Chico Rail Segments: Cumulative Stationary SourcesI

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Project: 0274904
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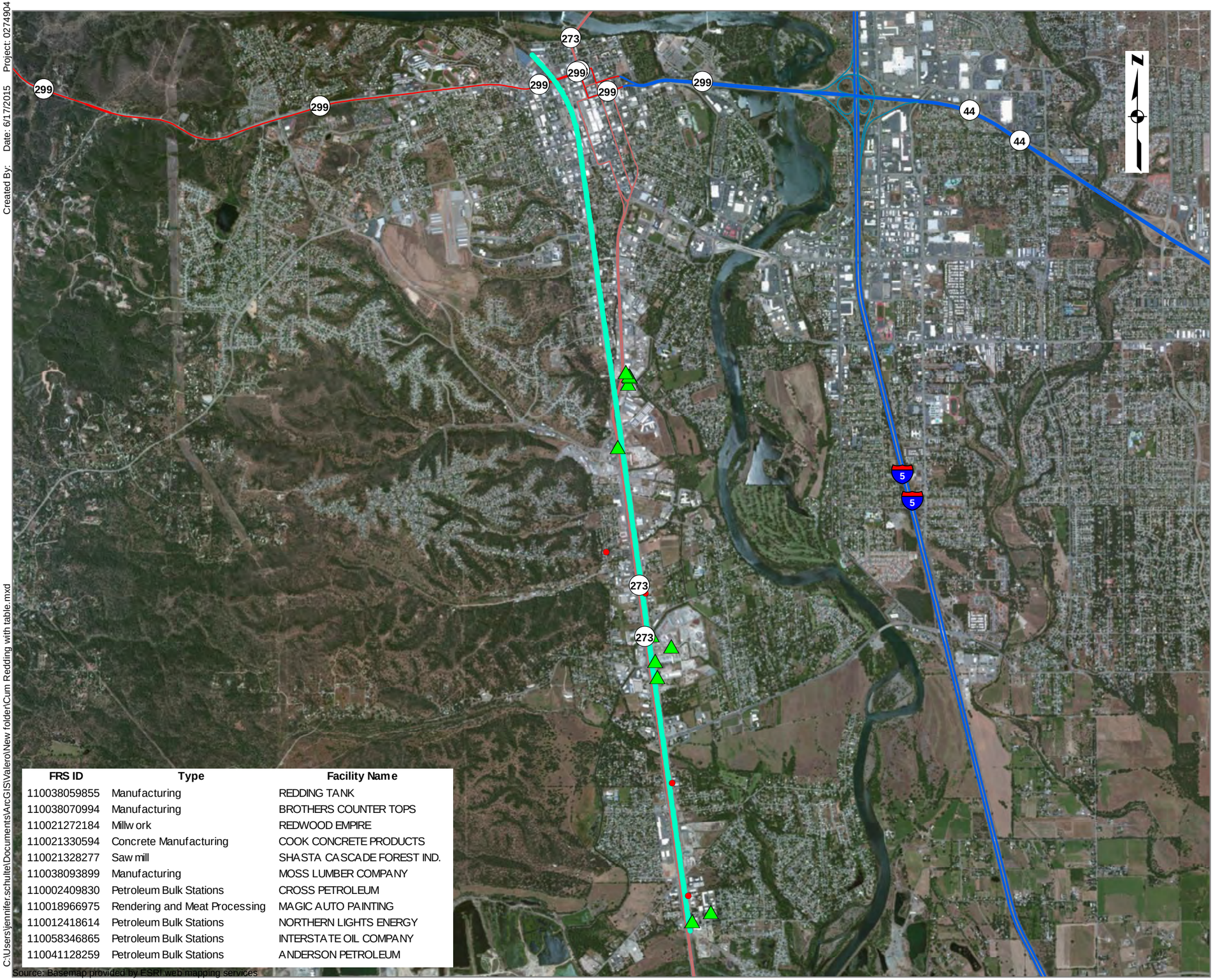
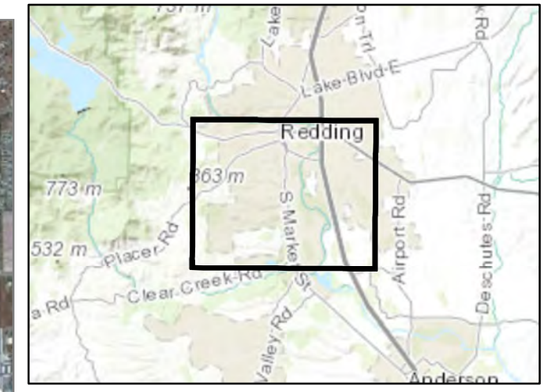


FRS ID	Type	Facility Name
110038059855	Manufacturing	REDDING TANK
110038070994	Manufacturing	BROTHERS COUNTER TOPS
110021272184	Millw ork	REDWOOD EMPIRE
110021330594	Concrete Manufacturing	COOK CONCRETE PRODUCTS
110021328277	Saw mill	SHASTA CASCADE FOREST IND.
110038093899	Manufacturing	MOSS LUMBER COMPANY
110002409830	Petroleum Bulk Stations	CROSS PETROLEUM
110018966975	Rendering and Meat Processing	MAGIC AUTO PAINTING
110012418614	Petroleum Bulk Stations	NORTHERN LIGHTS ENERGY
110058346865	Petroleum Bulk Stations	INTERSTATE OIL COMPANY
110041128259	Petroleum Bulk Stations	ANDERSON PETROLEUM

Source: Basemap provided by ESRI web mapping services



0 1,600 3,200 6,400 Feet

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Small Facility Type

- Auto Body
- Large Facilities
- Redding Rail Line

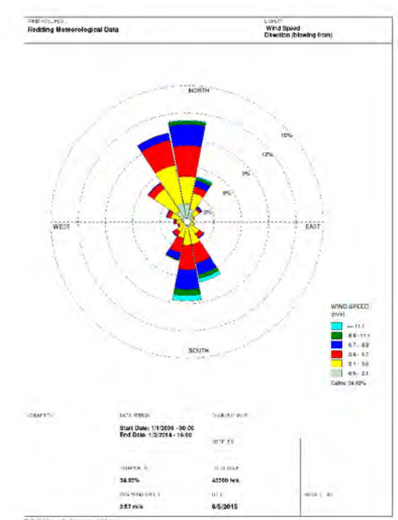

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Figure 3
Redding Rail Segments: Cumulative Stationary Sources

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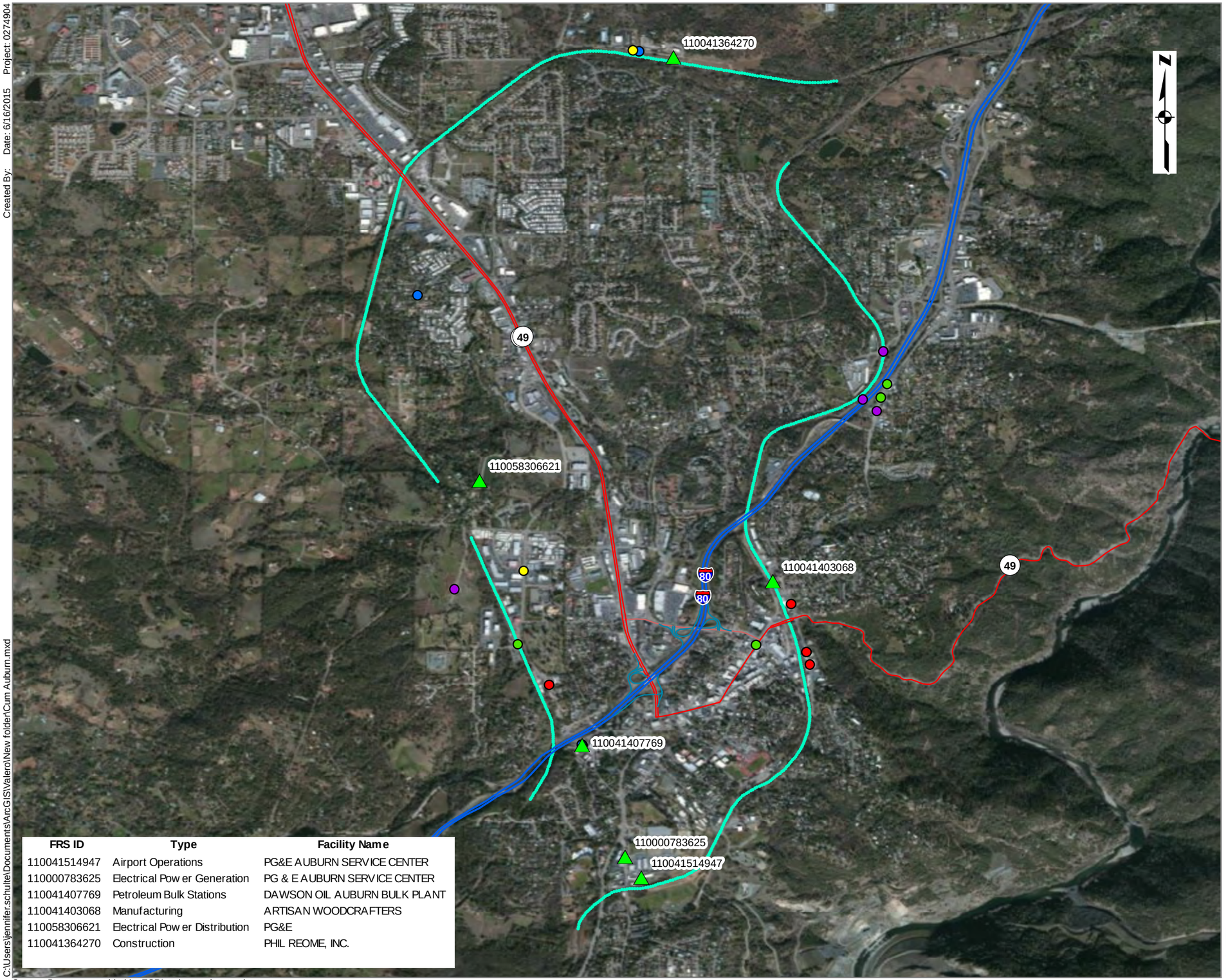

FRS ID	Type	Facility Name
110041514947	Airport Operations	PG&E AUBURN SERVICE CENTER
110000783625	Electrical Pow er Generation	PG & E AUBURN SERVICE CENTER
110041407769	Petroleum Bulk Stations	DAWSON OIL AUBURN BULK PLANT
110041403068	Manufacturing	ARTISAN WOODCRAFTERS
110058306621	Electrical Pow er Distribution	PG&E
110041364270	Construction	PHIL REOME, INC.

0 1,100 2,200 4,400 Feet

Legend

Small Facility Type

- Auto Body
- Educational Support
- Gas Stations
- Other Government Support
- Telecommunications
- Large Facilities
- Auburn Rail Lines

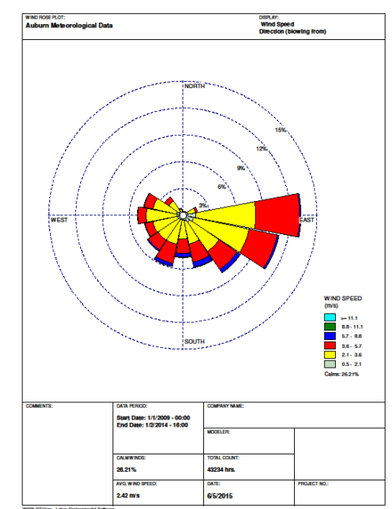

Figure 4
Auburn Rail Segments: Cumulative Stationary Sources

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Source: Basemap provided by ESRI web mapping services

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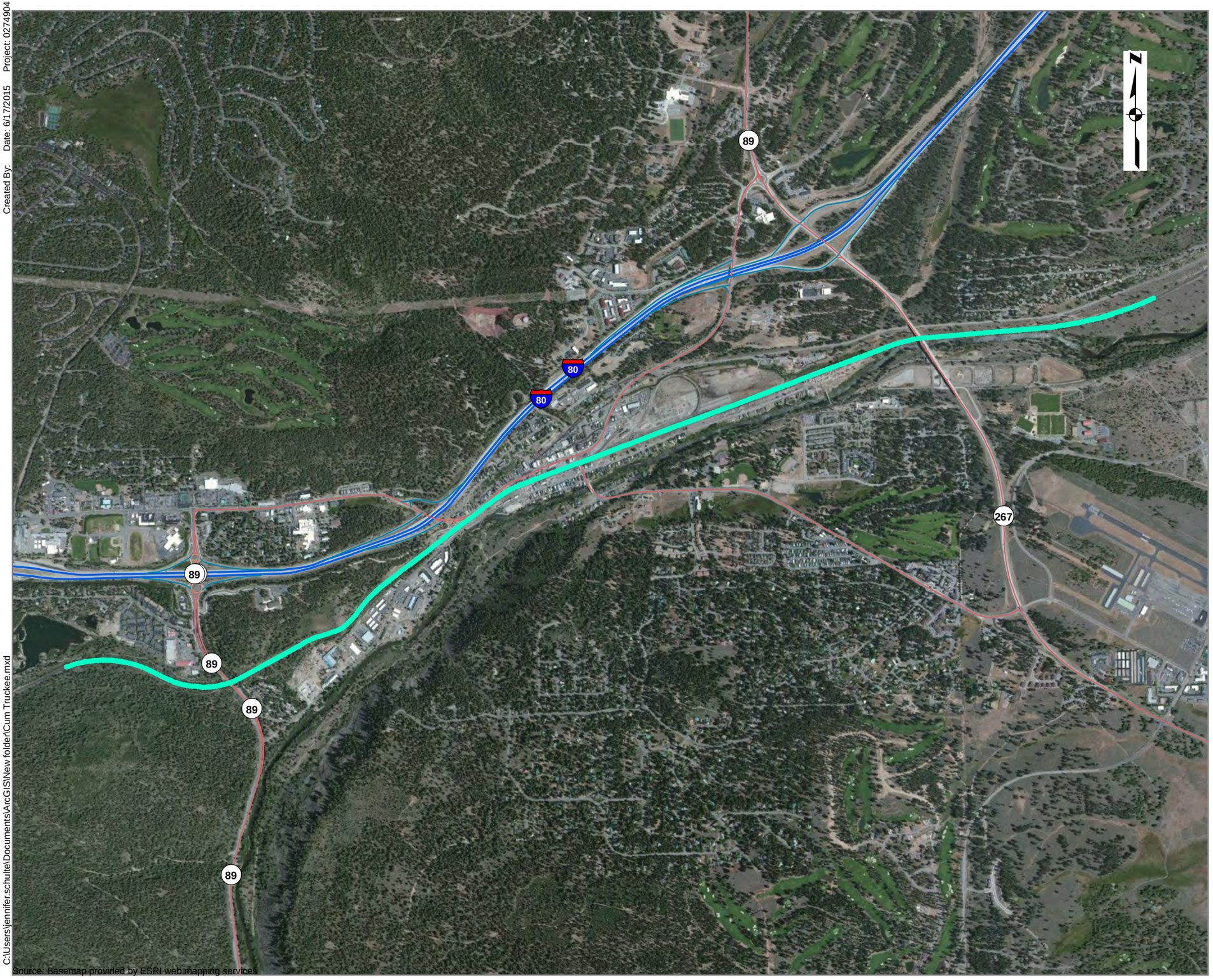
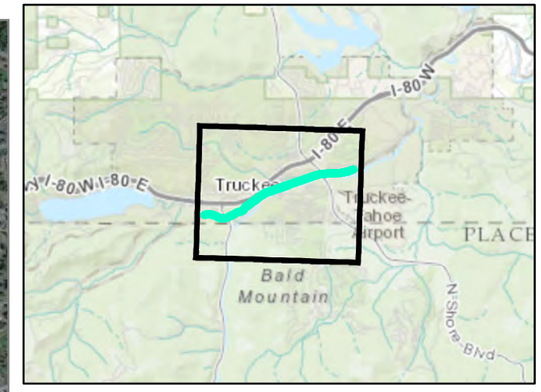
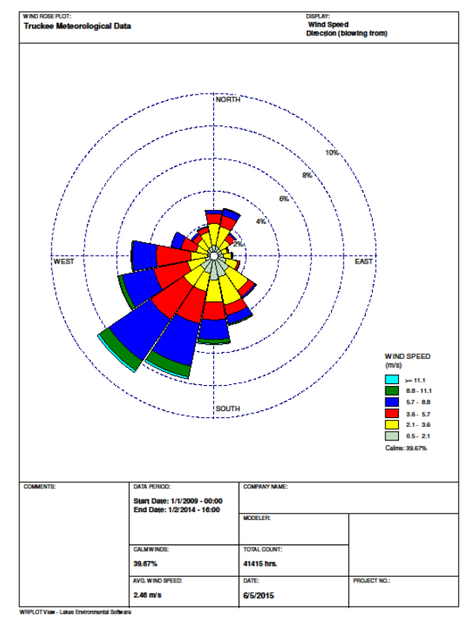




0 875 1,750 3,500 Feet

Legend

- Truckee Rail Line



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Source: Basemap provided by ESRI web mapping services

ERM

Figure 5
Truckee Rail Segments: Cumulative Stationary Sources