Table 4-20 compares the estimated loss in property taxes to the additional local revenue created by each alternative. The property taxes lost are not inflated. Therefore, they are expressed in Net Present Value without having to discount them. The revenue gained was affected by inflation and is presented in Net Present Value to reflect its cumulative value in today's dollars like the property taxes lost. While the forecast of revenues by terminal area cannot reflect how or where overall government revenues are spent, the table demonstrates that in each alternative, the "Government Revenue Gain," produced more new local revenues than the property tax revenue lost.

Table 4-20
Terminal Area Property Tax Reduction
and Local Revenue Gained [a]
(millions of 2004 dollars)

	ALT 1		ALT 2		ALT 3		ALT 4		Preferred Alternative (2008)	
	Property Tax Revenue Reduction	Net Gov't. Revenue Gain	Property Tax Revenue Reduction	Net Gov't. Revenue Gain	Property Tax Revenue Reduction	Net Gov't. Revenue Gain	Property Tax Revenue Reduction	Net Gov't. Revenue Gain	Property Tax Revenue Reduction	Net Gov't. Revenue Gain
Detroit Plus Local Revenues[b]	0.00	27.1	-17.3	49.9	-14.4	172.2	-13.8	177.4	**-11.3**	**141**
All Revenues, State and Local[c]	N/A	155	N/A	668	N/A	1,066	N/A	1,108	**N/A**	**1,041**

[a]Property tax figures are cumulative 2006 (the first year of expected implementation) to 2025 ***(or in the case of the Preferred, cumulative 2010 to 2030)***, expressed in 2004 ***(2008 for the Preferred)*** U.S. dollars (USD), in millions. Government Revenue Gain presented in Net Present Value, discounted at 2%, expressed as 2004 USD in millions ***(2008 for the Preferred).***

[b]Local Revenues represent cumulative loss and gain for all local, public, and revenue-generating entities within the Detroit Plus zone, including property taxes collected by the City of Detroit, Wayne County, and all other taxing authorities. Because they were never inflated they weren't discounted so they are already expressed in Net Present Value.

[c]All additional cumulative 2004-2005 ***(2008-2009 for the Preferred)*** revenues collected in the State of Michigan by any state or local entity.

Source: The Corradino Group of Michigan, Inc. and Analytic Planning Services

Preferred Alternative

Results for the Preferred Alternative reflect updated data and reapplication of the REMI model. (Tables 4-19, 4-20 and Figure 4-30). The forecast net job gain of the Preferred Alternative, while less than Alternatives 3 and 4, is still substantial. Some 231 jobs would be relocated, while the economic stimulus would generate approximately 4,514 jobs including the 2,359 jobs in the Detroit area. The schedule of the Preferred Alternative construction occurs later than was foreseen for the Practical Alternatives (Figure 4-30), as the project is delayed in its review/approval. Nonetheless, about 3,085 person years[33] of employment would be generated, with construction peaking in 2014 at 620 jobs.

4.6 Land Use and Zoning

Land use statements below are drawn from the Detroit Master Plan of Policies dated 1992. Several commenters on the DEIS called for use of the 2004 Master Plan of Policies; however, the 2004 Plan was in draft form at the writing of the DEIS and FEIS. ***To see land use maps of the areas around the Detroit terminals, go to http://www.detroitmi.gov/Departments/PlanningDevelopmentDepartment/Planning/LongRangeandCommunityPlanning/2004MasterPlanDraft/tabid/2055/Default.aspx.***

[33] A person year is one person working one year.

4.6.1 Livernois-Junction Yard

Land use in the Livernois-Junction Yard area is predominately industrial and commercial. The area has large amounts of land dedicated to railroads, scrap yards, equipment storage, container storage, and truck terminals and offices. Ford's large River Rouge plant is to the west of the terminal. Residential land is to the east of the terminal and north of the industrial land that borders the terminal. A substantial amount of vacant land exists in the terminal area. The non-residential zoning in Detroit around the Livernois terminal is predominantly intensive industrial and special industrial. The zoning in the area also includes single-family residential, two-family residential, medium density multi-family residential, low density multi-family residential, general business, local business, restricted industrial, and general industrial. The zoning in Dearborn around the Livernois-Junction Yard is intensive industrial. The Detroit Master Plan of Policies for the Southwest Sector of the City states:

> "Southwest Detroit has two outstanding economic characteristics: an exceptional concentration of very heavy industry, and a unique convergence of freight transportation modes. Weaknesses of the Sector relate to economic obsolescence in both the industrial and commercial plant. Strengths of the area include the Detroit River as a unique attraction, the fixed nature of the transport infrastructure, the availability of many sound industrial buildings, and the shopping habits of many local residents favoring neighborhood stores.
>
> Detroit's major concentration of ports, rail facilities, truck terminals, pipelines, international crossings and associated or support facilities and organizations occurs in the Southwest Sector. This remains unchanged despite the serious and continuing erosion of the Sector's manufacturing base. Only to a limited extent can changing technology, changing corporate ownership patterns, or other evolutionary factors disperse southwest Detroit's highly significant concentration of freight facilities. In fact, prevailing economic forces actually favor continued concentration.
>
> The Southwest Sector, therefore, will remain an area of primary economic importance, and industrial activities, within the limits of sound planning and environmental protection."

The Dearborn Master Plan states the following:

> "A multi-modal freight terminal is planned to serve the Con Rail Railroad lines directly east of the City of Dearborn. This facility would be so close to Dearborn that it could eventually serve industrial development and shipping needs in both Detroit and Dearborn. A multi-modal facility would provide automatic transfers between port, rail, truck and air transit modes. Without such a multi-mode facility, a company would have to make separate arrangements when shipping goods over water, air, or land. With a multi-modal terminal, a shipment can be automatically transferred from one mode of transportation to another without the need to make additional separate arrangements. Such a facility is a strong economic development incentive and although the facility will be located in Detroit, it will be close to Dearborn and should also have a strong economic development advantage for Dearborn."

4.6.2 CP/Expressway Terminal

Land use immediately around the Expressway terminal includes railroad facilities, the old MCRR passenger station, a hospital, industrial land, commercial land, and vacant land. Zoning immediately around the Expressway terminal includes intensive industrial, general industrial, restricted industrial, two-family residential, and general business.

4.6.3 CP/Oak Terminal

Land use around the CP/Oak terminal is predominately industrial. I-96 is located directly to the south of the terminal. Zoning immediately around the CP/Oak terminal includes intensive industrial, general industrial, restricted industrial, single-family residential, and two-family residential.

4.6.4 CN/Moterm Terminal

Land use immediately around the CN/Moterm terminal is predominately industrial to the east and north and single-family residential to the west. Eight Mile Road and the Michigan State Fairgrounds are to the south of the terminal. Zoning, in Detroit, immediately around the Moterm terminal includes general business, two-family residential, and intensive industrial. Zoning, in Ferndale, immediately around the Moterm terminal is predominantly general manufacturing and light manufacturing with some low density residential, single-family residential, vehicular parking, and business zoning. The Detroit Master Plan of Polices for the North Sector of the city states:

> "The elements most greatly affecting the future of the North Sector are its industrial facilities, its neighborhood systems, and – directly tied to neighborhoods – its housing stock. The Sector's greatest potential lies in the maximization of these three resources.
>
> Industrial areas of the North Sector appear to have excellent potential for continued employment opportunities, for expansion of select areas, and for continued support of the economic base of the City, given the Sector's attributes of location.
>
> Central to the future of the North Sector is its neighborhood systems. The North Sector has many healthy neighborhoods on which to expand; it has just as many neighborhoods with the potential to become just as healthy as any of the best neighborhoods of the Detroit metropolitan area.
>
> The North Sector is a major trucking center, second in importance only to the Southwest Sector (among Detroit's 11 planning sectors). Rail transportation, however, is of less importance to the North Sector, for rail lines mainly serve through traffic. The Sector is not heavily industrialized; there are very few active rail sidings here, and no rail classification yards (areas used for switching and freight trains linking up) or terminals remaining active.
>
> The construction of the planned Light Rail Transit (LRT) system along Woodward will have an important impact on the North Sector. The regional transportation plan calls for the development of a LRT system in the Woodward Corridor from downtown Detroit to the northern suburbs."

The terminal proper lies in Ferndale. Its Master Plan states:

> "Ferndale's economic health depends on maintaining and expanding the existing industrial and business base. The recent East Michigan Environmental Action Council (EMEAC) project reported that 20 percent of the industrial firms were considering relocating outside the City. Reasons given for considering relocating were: to be closer to customers; to find land to expand; to access cheaper labor pools; to escape local business decline; and to move to a more receptive city. An ongoing mechanism needs to be established to obtain input from the business and industrial community to assist the City of Ferndale and the Chamber of Commerce officials to identify priority needs."

Alternative 1: No Action

The continued existence of the four rail terminals is contemplated by the Detroit Master Plan of Policies (Livernois-Junction Yard, CP/Expressway, CP/Oak and CN/Moterm terminals), the Dearborn Master Plan (Livernois-Junction Yard), and the Ferndale Master Plan (CN/Moterm).

Alternative 2: Improve/Expand Existing Terminals

Further development of the Livernois-Junction Yard is consistent with the Master Plan of Policies of the City of Detroit. It is also consistent with the Dearborn Master Plan.

Expansion of the CP/Expressway terminal is consistent with the Master Plan of Policies of the City of Detroit, as described for the Southwest Sector of the City.

Further development of the CP/Oak terminal is not specifically mentioned in the Master Plan of Policies of the City of Detroit.

Expansion of the CN/Moterm terminal into the Fairgrounds is consistent with previous use of the Fairgrounds property by Canadian National Railroad and the current and more extensive use by DaimlerChrysler (refer to Figure 6-6). It is noteworthy the Michigan courts ruled in 1994 that use of the Fairgrounds is not subject to local government zoning control which allows the Fairgrounds to use its land as it sees fit. Expansion of CN/Moterm is consistent with the Detroit Master Plan of Policies for the North Sector of the City and with the Ferndale Master Plan.

Alternative 3: Consolidate All Four Class I Railroads' Intermodal Activity at Livernois-Junction Yard Area

This consolidation at the Livernois-Junction Yard is consistent with the Detroit Master Plan of Policies and the Dearborn Master Plan, as much of that development will take place on industrial property while rezoning would be required of about 12 acres, out of the 384-acre expansion area, which is now residential.

Alternative 4: The Composite Option

Expanding the Livernois-Junction Yard is consistent with the Detroit Master Plan of Policies, as much of the development will take place on industrial property. About 10 acres of the 265-acre expansion area is now residential and rezoning will be required. Expansion of the CN/Moterm terminal is consistent with the Detroit Master Plan of Policies, the Ferndale Master Plan, and past practices at the Fairgrounds.

Preferred Alternative

Expanding the Livernois-Junction Yard is consistent with the Detroit Master Plan of Policies, as much of the development will take place on industrial property. About 10 acres of the 169-acre expansion area is now residential and rezoning will be required. This will be consistent with land uses in the area.

4.7 Farmland and Open Space/Part 361 of Michigan Act 451 Lands/Forest Land

There is no agriculture or forestry zoning associated with any terminal. So, an additional review under the Federal Farmland Protection Policy Act is not required, therefore, an A.D. 1006 form was not prepared and coordinated with the U.S. Department of Agriculture, Natural Resources Conservation Service. The Michigan Department of Agriculture stated, "Since the construction of the proposed Detroit Intermodal Freight Terminal Project is to be accomplished within a highly developed part of the state, no adverse impacts to agriculture are anticipated." (See letter dated September 18, 2002, Appendix A, Section 2 of the DEIS). No Michigan Public Act 451, Part 361 (The Farmland and Open Space Preservation Act) parcels are within the project area.

Preferred Alternative

Conclusions have not changed from the DEIS; the Preferred Alternative would have no effect on Part 361 lands or farmland (see letter in Appendix A from the U.S. Department of Agriculture dated June 1, 2005).

4.8 Air Quality Analysis

The first 30 pages of this section is the DEIS analysis. The FEIS analysis is found at Section 4.8.7.

The DIFT air quality analysis was guided by an Air Quality Protocol (Appendix E) and included:

- A discussion of air quality conformity and the attainment status of the project area with respect to the National Ambient Air Quality Standards (NAAQS), notably carbon monoxide (CO), ozone, and $PM_{2.5}$ (particulate matter of 2.5 micros or smaller).
- A discussion of pollution trends, and of U.S. EPA measures to improve air quality.
- A discussion of air toxics, including a qualitative discussion of health risks and current science.
- An estimate of the pollutant burden that will be generated by the No Action and Action Alternatives for each terminal for the NAAQS pollutants and several key air toxics. "Burden" means the mass of a pollutant produced in a given period. Burden does not mean the amount of a pollutant concentrated in a specific location. In this case, pollutant burden is expressed in tons per year.
- An estimate of the pollutant burden produced by mobile source activities on the local public roadway network near each terminal that would experience traffic volume changes. This burden analysis included the NAAQS pollutants and several key air toxics.
- A CO hotspot analysis at key intersections in the terminal areas that compared CO concentrations to the one- and eight-hour NAAQS. This was not a burden analysis but a concentration analysis, which defines the pollutant level at a specific location to which people are exposed.

4.8.1 Air Quality Conformity

The Clean Air Act requires Michigan (and all other states) to have a *State Implementation Plan* (SIP) to demonstrate how it will attain and/or maintain National Ambient Air Quality Standards (NAAQS) (Table 4-21). SEMCOG, the Southeast Michigan Council of Governments, collaborates with the Air Quality Division of the Michigan Department of Environmental Quality (DEQ) on the work needed to prepare and/or update a SIP. SEMCOG is responsible for reviewing mobile source (vehicular) emissions in Southeast Michigan when projects are proposed for inclusion in their long-range transportation plan. SEMCOG's *2030 Regional Transportation Plan* (RTP) must undergo a quantitative analysis demonstrating that emissions levels associated with implementing planned projects are below designated emissions level limits (budgets) set forth in the SIP. In so doing, SEMCOG is managing and facilitating the transportation air quality conformity process in Southeast Michigan. The DIFT project is subject to air quality transportation conformity review through SEMCOG's inclusion of any DIFT roadway improvements in its RTP. This will occur after the public hearing when a preferred alternative is determined.

Table 4-21
National Ambient Air Quality Standards

Pollutants	Average Time	Primary Standard [a]	Secondary Standard [b]
Carbon Monoxide	1-hr	35 ppm (40mg/m^3)	No Secondary Standard
	8-hr	9 ppm (10mg/m^3)	No Secondary Standard
Lead	Quarter	1.5 µg/m^3	Same as Primary
Nitrogen Dioxide	Annual	0.053 ppm (100µg /m^3)	Same as Primary
Ozone	1-hr	0.12 ppm (235µg/m^3)	Same as Primary
	8-hr	0.08 ppm (157µg/m^3)	Same as Primary
Respirable Particulate Matter (10 microns or less) (PM_{10})	24-hr	150 µg/m^3	Same as Primary
	Annual	50 µg/m^3	Same as Primary
Respirable Particulate Matter (2.5 microns or less) ($PM_{2.5}$)	24-hr	65 µg/m^3	Same as Primary
	Annual	15 µg/m^3	Same as Primary
Sulfur Dioxide	3-hr	–	0.5 ppm (1300µg/m^3)
	24-hr	0.14 ppm (365µg/ m^3)	–
	Annual	0.03 ppm (235µg/ m^3)	–

Note: ppm is parts per million; mg is milligrams; µg is micrograms.
[a] Primary NAAQS: the levels of air quality that the EPA judges necessary, with an adequate margin of safety, to protect the public health.
[b] Secondary NAAQS: the levels of air quality that the EPA judges necessary to protect the public welfare from any known or anticipated adverse effects.
Source: Code of Federal Regulations, Title 40, Part 50.

Air quality conformity analyses for mobile sources required in Southeast Michigan currently involve two major pollutants: carbon monoxide (CO) and ozone (and its precursors volatile organic compounds and nitrogen oxides). A new standard will require such analysis for $PM_{2.5}$ by April 2006. This attainment status of the region is as follows:

Carbon monoxide - In 1999, Wayne, Oakland, and Macomb counties were redesignated from nonattainment to maintenance for CO. Similar to ozone, a positive conformity determination for CO requires that emissions in any future year remain at or below the

approved mobile source emissions budget of 3,843 tons/day. On January 28, 2005, (effective March 28, 2005) EPA approved a revised CO budget of 1946 tons /day.

One-hour ozone - In 1995, the seven-county SEMCOG region was redesignated from nonattainment to maintenance for the one-hour ozone standard. At that time, a maintenance plan was developed establishing emissions budgets for the two precursors of ozone: volatile organic compounds (VOCs) and nitrogen oxides (NOx). In order for a conformity determination to be made with regard to the one-hour ozone standard, VOCs emissions cannot exceed the mobile source emissions budgets of 218 tons/day for years 2004-2014, and 173 tons/day for years 2015 and beyond. For NOx, emissions cannot exceed the budget of 413 tons/day in any analysis year. The 8-hour standard (see below) now supplants the 1-hour standard, but until an 8-hour emissions budget is established, conformity will be the same as for 1-hour.

Eight-hour ozone - On April 15, 2004, the EPA officially designated the seven-county SEMCOG region, plus Lenawee County, a moderate nonattainment area for the 8-hour ozone standard. In September 2004, EPA approved the reclassification of the area from moderate to marginal ozone nonattainment. A SIP, which must be approved by 2007, is currently being developed to address this issue. As noted, for the time being, the test of 8-hour conformity remains the same as that used to demonstrate conformity for one hour.

PM_{10} - As mobile sources in Southeast Michigan currently meets the NAAQS for this pollutant, a regional transportation conformity analysis is not required.

$PM_{2.5}$ - EPA designated seven counties in Southeast Michigan as nonattainment for this new standard December 15, 2004. Conformity determinations for $PM_{2.5}$ will be required by April 5, 2006.

The project must be included in SEMCOG's cost-feasible *Regional Transportation Plan* and *Transportation Improvement Program* (TIP) to advance to design. To be included on the plan and TIP, it must be consistent with the State Implementation Plan (SIP). When analyzed together with other plan elements, the air pollution generated must not exceed "budgets" established in the SIP. After the public hearing, when a preferred alternative is determined; the DIFT project elements that cause changes to the transportation network will be evaluated by SEMCOG for air quality conformity.

4.8.2 Pollution Trends – NAAQS Pollutants and Air Toxics

This section presents: 1) information about air quality trends and measures EPA is taking to improve air quality; 2) data from air pollution monitoring stations nearest the terminals; and, 3) how these measures relate to $PM_{2.5}$ and air toxics.

4.8.2.1 Air Quality Trends and EPA Measures to Improve Air Quality

EPA has recently implemented regulations related to on-road diesel engines, fuels, and non-road equipment, including that used on railroad yards. These regulations will substantially improve air quality. Before discussing these measures, it is of interest to review several relevant aspects of key pollutants.

Diesel exhaust is a complex mixture of inorganic and organic (carbon-based) compounds that occur as a blend of gases and particles. The gaseous components include nitrogen oxides, sulfur compounds, and low-molecular-weight hydrocarbons, such as the aldehydes, benzene, 1,3-

butadiene, and polynuclear aromatic hydrocarbons. The particle phase of diesel exhaust consists of elemental carbon, adsorbed organic compounds and small amounts of sulfate, nitrate, metals and other trace elements. Diesel particulate matter (DPM) has been estimated to comprise about six percent of the total $PM_{2.5}$ inventory nationwide but more in urban areas, excluding natural and miscellaneous sources (U.S. EPA, 2002).

Compounds of most specific interest for the DIFT project are those found in particulate matter and, to a lesser degree, volatile organic compounds (VOCs), which are also emitted by diesel vehicles. Data from the 1996 National Toxics Inventory indicate that mobile sources account for approximately 50 percent of air toxics emissions (U.S. EPA, 2000). Several of the air toxics that EPA has identified as priority mobile source air toxics (MSATs) constitute a subset of all VOCs. The MSATs considered in the DIFT environmental impact analysis (see Air Quality Protocol – Appendix E) are benzene, 1,3-butadiene, formaldehyde, acetaldehyde, and acrolein. Also included on EPA's list is diesel particulate matter (DPM). These particular air toxics were selected to be included in the burden analysis because: 1) mobile sources, both on-road and non-road, contribute the majority of annual emissions for five of these air toxics (acetaldehyde, acrolein, benzene, 1,3-butadiene and formaldehyde) on a national basis; 2) they are representative of the complete list of gaseous mobile source air toxics; and, 3) these air toxics are some of the more important ones from a health standpoint. It is important to note that almost all of the remaining hazardous air pollutants (HAPs) emitted by mobile sources are trace metals, and compounds associated primarily with the particulate phase. Stationary and area sources account for most the nationwide emissions of these HAPS.

EPA has issued a suite of motor vehicle and fuels regulations, including: 1) tailpipe emission standards for cars, SUVs, mini-vans, pickup trucks and heavy trucks and buses; 2) standards for cleaner-burning gasoline; 3) a national low-emission vehicle program; and, 4) standards for low-sulfur gasoline and diesel fuel. By the year 2020, these requirements are expected to reduce emissions of a number of air toxics (benzene, 1,3-butadiene, formaldehyde, and acetaldehyde) from highway motor vehicles by about 75 percent and diesel particulate matter by over 90 percent from 1990 levels (U.S. EPA, 2000).

In addition, EPA issued a regulation in May 2004 to control emissions from diesel-powered non-road engines, such as construction equipment and railroad locomotives. EPA also provides assistance in identifying and implementing voluntary programs, such as diesel retrofits, to achieve additional reductions.

The EPA-approved MOBILE6.2 model allows projections of future emission factors for the NAAQS pollutants and certain air toxics associated with mobile sources. The model accounts for the recent EPA regulatory changes. Emission factors vary by speed and type of vehicle. By focusing on representative vehicle types and speeds, future emission factors can be related to trends over time (i.e. 2004, 2015, and 2025). Graphics illustrate substantial downward trends for the following representative conditions:

- Passenger vehicles and NAAQS pollutants at: a) 10 mph (Figure 4-31a), and b) 30 mph (Figure 4-31b)
- Passenger vehicles and air toxic pollutants at: a) 10 mph (Figure 4-31c), and b) 30 mph (Figure 4-31d)
- Trucks and NAAQS pollutants at: a) 10 mph (Figure 4-31e), and b) 30 mph (Figure 4-31f)
- Trucks and air toxic pollutants at: a) 10 mph (Figure 4-31g), and b) 30 mph (Figure 4-31h)

Figure 4-31a - h
Emission Factor Trends

Figure 4-31a
Passenger Vehicles: NAAQS Pollutants at 10 mph

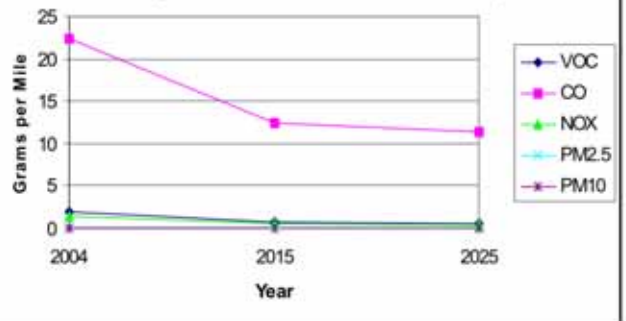


Figure 4-31b
Passenger Vehicles: NAAQS Pollutants at 30 mph

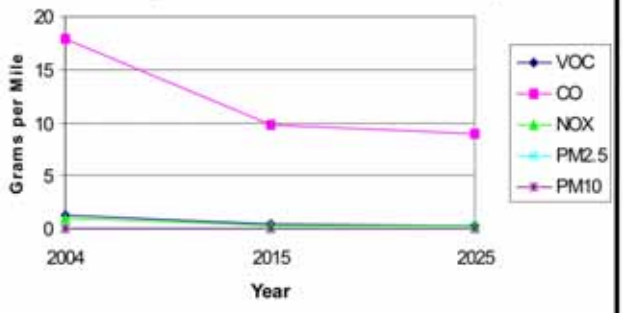


Figure 4-31c
Passenger Vehicles: Air Toxic Pollutants at 10 mph

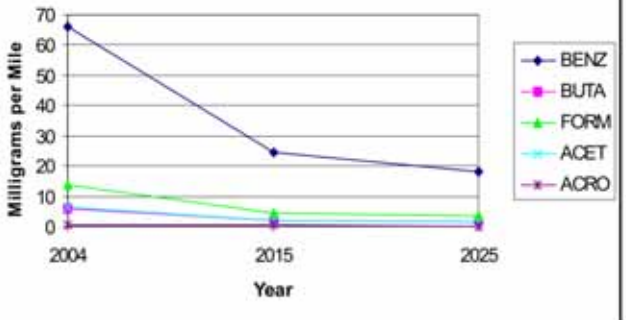


Figure 4-31d
Passenger Vehicles: Air Toxic Pollutants at 30 mph

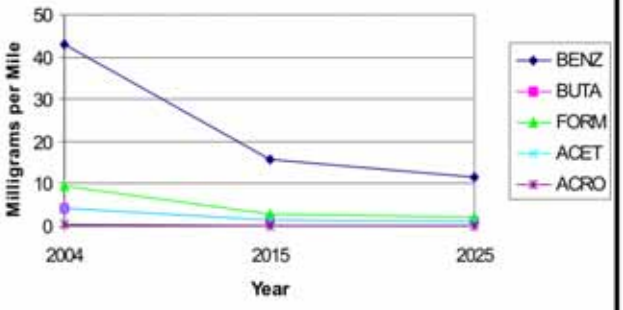


Figure 4-31e
Trucks: NAAQS Pollutants at 10 mph

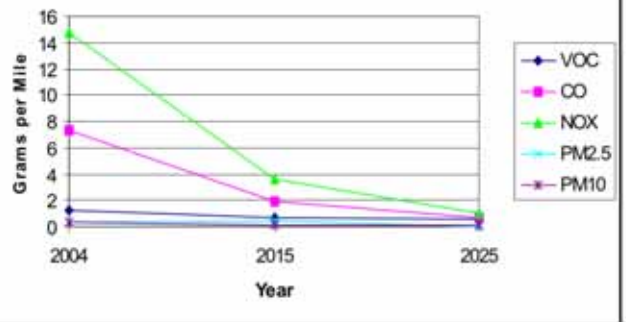


Figure 4-31f
Trucks: NAAQS Pollutants at 30 mph

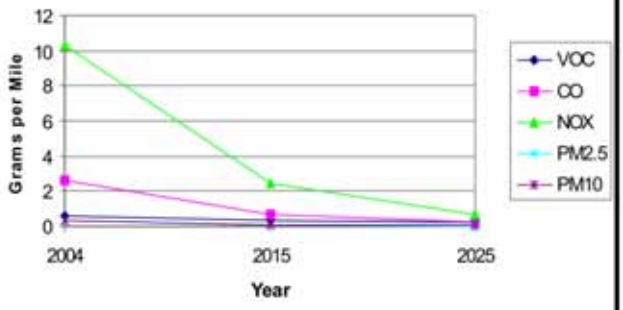


Figure 4-31g
Trucks: Air Toxic Pollutants at 10 mph

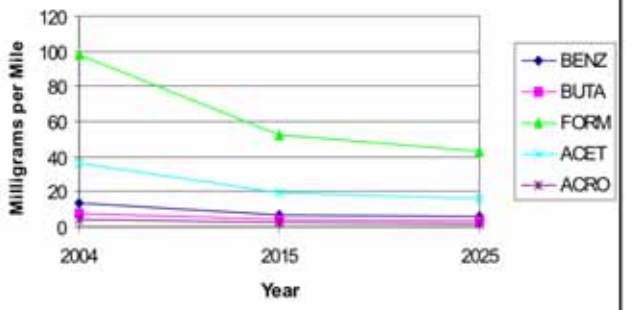
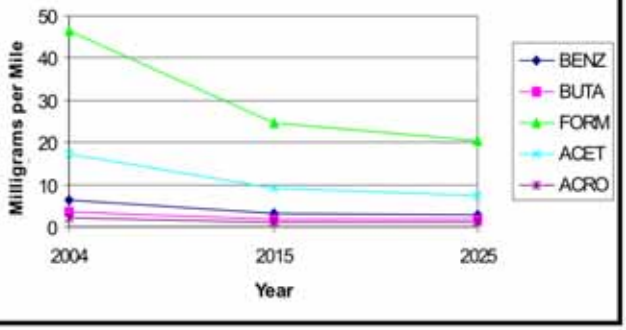


Figure 4-31h
Trucks: Air Toxic Pollutants at 30 mph



SOURCE: EPA Computer Model MOBILE6.2
L:/Projects/2846-A/Graphics/Enviro/AirData2.cdr

4.8.2.2 Monitoring Data

Air pollution monitoring station data collected for the terminal areas are displayed in Figures 4-32 through 4-39. The information for the Livernois-Junction Yard is from the Detroit Linwood monitor (Station 26-163-0016) and the Dearborn Wyoming monitor (Station 26-163-0033). Information for the Oak and Moterm terminals is from the Detroit Oak Park monitor (Station 26-125-0001) for CO, ozone, and $PM_{2.5}$. Data are not collected at this monitor for NOx and PM_{10}, so the data from the Linwood and Wyoming monitors are the best available monitoring data.

The most critical of these data are particulate matter and ozone, because of the area's nonattainment status.

There is a downward trend in ozone at the Livernois-Junction Yard in terms of the 1-hour standard (Figure 4-33 top), but 8-hour average values have risen over the last several years and are above the standard (Figure 4-33 bottom). The pattern is similar at the CP/Oak and CN/Moterm terminal areas (as measured at the Oak Park Drive monitoring station, Figure 4-38). The ozone issue will be addressed by SEMCOG in a transportation conformity assessment of the DIFT. But, in that regard, the ability of the DIFT to divert some freight shipments from trucks to rail will have a positive regional effect on ozone.

For particulate matter at the CP/Oak and CN/Moterm terminal areas the 24-hour standard is not exceeded but the annual average has been (Figure 4-39 bottom). The Livernois-Junction Yard area shows a similar pattern, but the particulate values are higher. Particulate matter (PM_{10} and $PM_{2.5}$) measurements have been trending upward, except for the annual mean value of $PM_{2.5}$. And, the measured annual mean values for the last several years have been above the NAAQS (Figure 4-35 bottom). The PM_{10} values at the Wyoming Avenue monitoring station spiked in 2003 for an undetermined reason.

4.8.3 Air Toxics and $PM_{2.5}$ – Health Effects and Limitations of Current Science

Research is underway by EPA and others at a national level to evaluate ambient air toxics in order to understand their spatial variability in urban settings; evaluate data from mobile-source oriented monitors; and, provide data for the National Air Toxics Network maintained by EPA. One of the programs sponsored by EPA is the Detroit Air Toxics Pilot Project, which began collecting data from monitoring stations in 2001. Data from these programs may ultimately be used to develop standards to address health or environmental risks from air toxics.

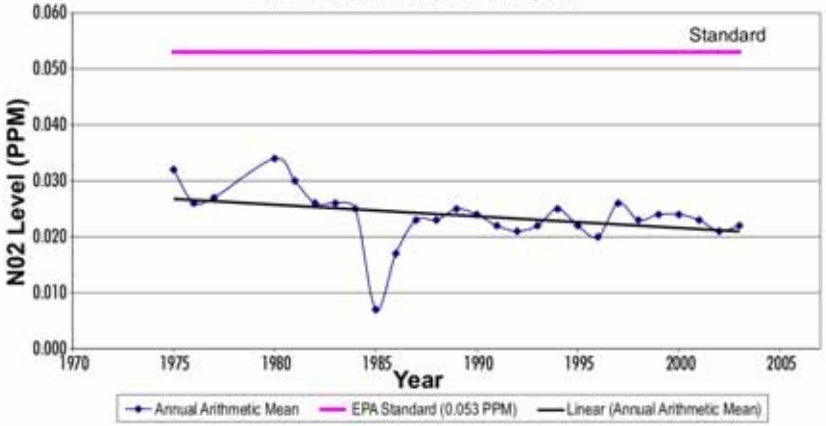
Some health agencies and research institutions have reported on the health effects of air toxics and $PM_{2.5}$. Exposure to these pollutants at sufficient concentrations and durations may result in an increased chance of experiencing serious health effects. These health effects appear to include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems. The health effects from some air toxics may appear following a short period of exposure, while others may only appear after long-term exposure. "For these (and other) reasons, it is frequently very difficult to conclusively associate environmental levels and potentially linked public health impacts" (MDEQ, 2003). Additionally, supporting documents for the health assessment of diesel engine exhaust used in the development of EPA's non-road rules acknowledge that "the assessment's health hazard conclusions are based on exposure to exhaust from diesel engines built prior to the mid-1990s"….and "as new diesel engines with cleaner exhaust emissions replace existing engines, the applicability of the conclusions in this Health Assessment Document will need to be re-evaluated" (U.S. EPA, 2002). This is particularly pertinent as the implementation of the DIFT project will occur only after EPA's requirement that sulfur be taken out of fuel (2007) and all on- and off-road diesel engines will be substantially cleaner.

Figure 4-33
Livernois-Junction Yard Terminal Area
Monitored Pollutant: Ozone (O3)
1-hr Average
Station: 26-163-0016 at 6050 Linwood Avenue, Detroit
Standard
Max. 1-hr Ave.
EPA Standard (0.12 PPM)
Linear (Max. 1-hr Ave.)
O3 Level (PPM)
Year
Figure 4-32
Livernois-Junction Yard Terminal Area
Monitored Pollutant: Carbon Monoxide (CO)
Maximum 1-hr Average
Station: 26-163-0016 at 6050 Linwood Avenue, Detroit
Standard
CO Max. 1-hr Average
EPA Standard (35 PPM)
Linear (CO Max. 1-hr Average)
CO Level (PPM)
Year
6050 Linwood Ave
2942 WYOMING AVE
Monitored Pollutant: Ozone (O3)
8-hr Average
Station: 26-163-0016 at 6050 Linwood Avenue, Detroit
Standard
Max. 8-hr Ave.
EPA Standard (0.08PPM)
Linear (Max. 8-hr Ave.)
O3 Level (PPM)
Year
Note: Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx, and VOC, that help to form ground-level ozone.
Monitored Pollutant: Carbon Monoxide (CO)
Maximum 8-hr Average
Station: 26-163-0016 at 6050 Linwood Avenue, Detroit
Standard
CO Max. 8-hr Average
EPA Standard (9 PPM)
Linear (CO Max. 8-hr Average)
CO Level (PPM)
Year
Note: CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Diesel engines produce less CO than gasoline engines.
SOURCE: U.S. EPA AirData

Figure 4-34
Livernois-Junction Yard Terminal Area

Monitored Pollutant: Nitrogen Dioxide (NO_2)
Annual Mean

Station: 26-163-0016 at 6050 Linwood Avenue, Detroit

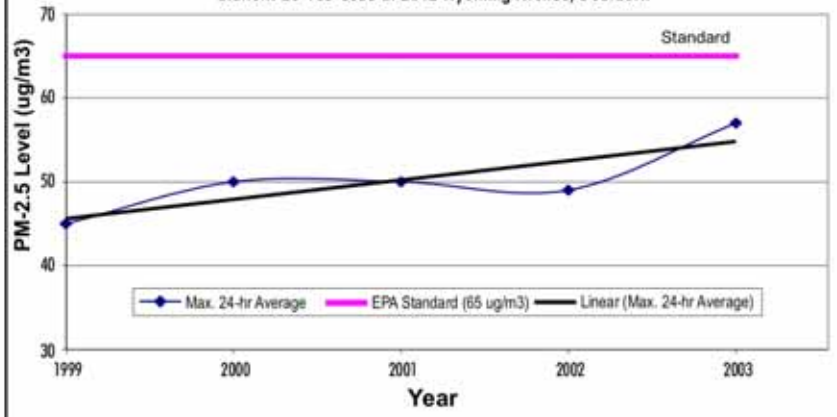


Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels.

Figure 4-35
Livernois-Junction Yard Terminal Area

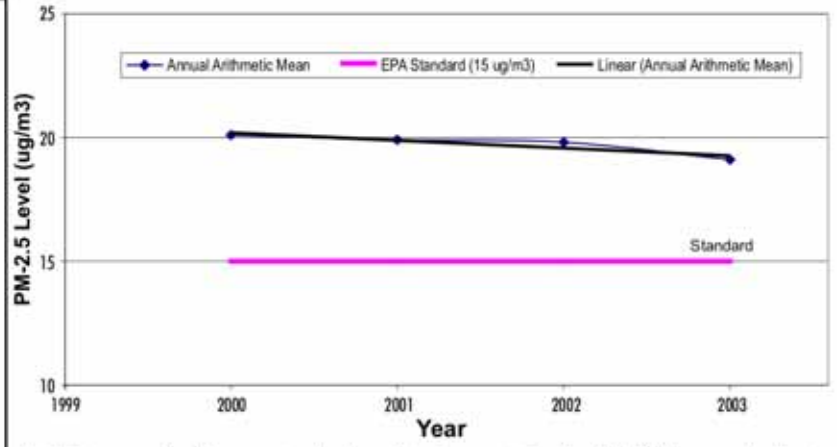
Monitored Pollutant: Particulate Matter (PM-2.5)
24-hr Average

Station: 26-163-0033 at 2842 Wyoming Avenue, Dearborn



Monitored Pollutant: Particulate Matter (PM-2.5)
Annual Mean

Station: 26-163-0033 at 2842 Wyoming Avenue, Dearborn



Particulates come directly from cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads, stone crushing, and burning of wood. They also form as burning fuels react with sunlight and water vapor. PM 2.5 are fine particulates that can be inhaled deep into the lungs.

SOURCE: U.S. EPA AirData
L:/Projects/2946-A/Graphics/Enviro/AirData2.cdr

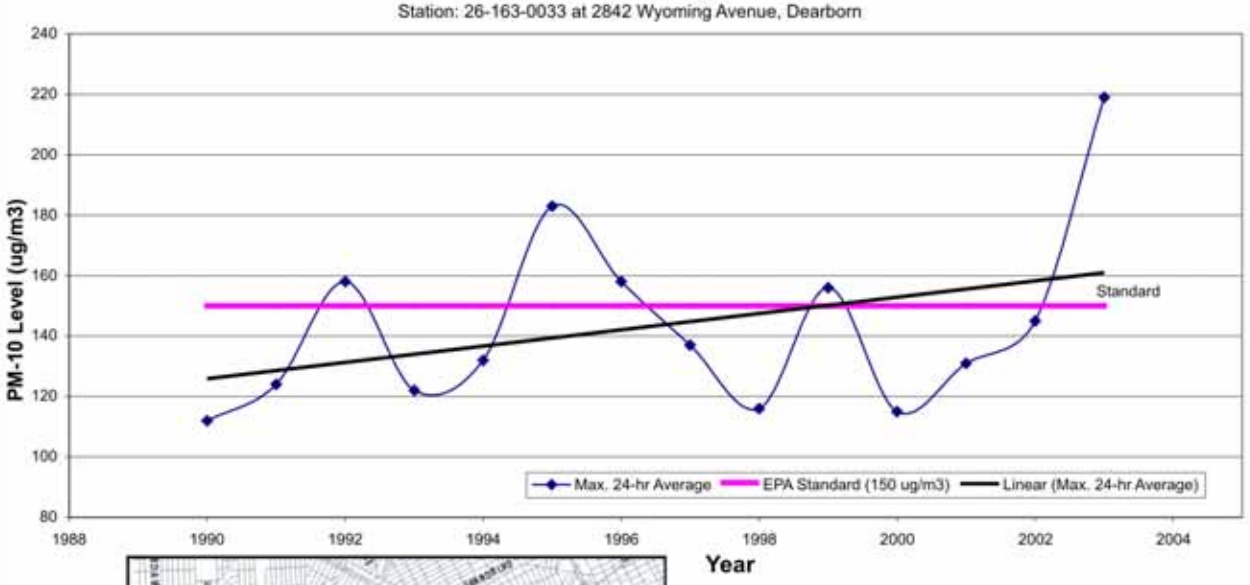
Figure 4-36

Livernois-Junction Yard Terminal Area

Monitored Pollutant: Particulate Matter (PM-10)

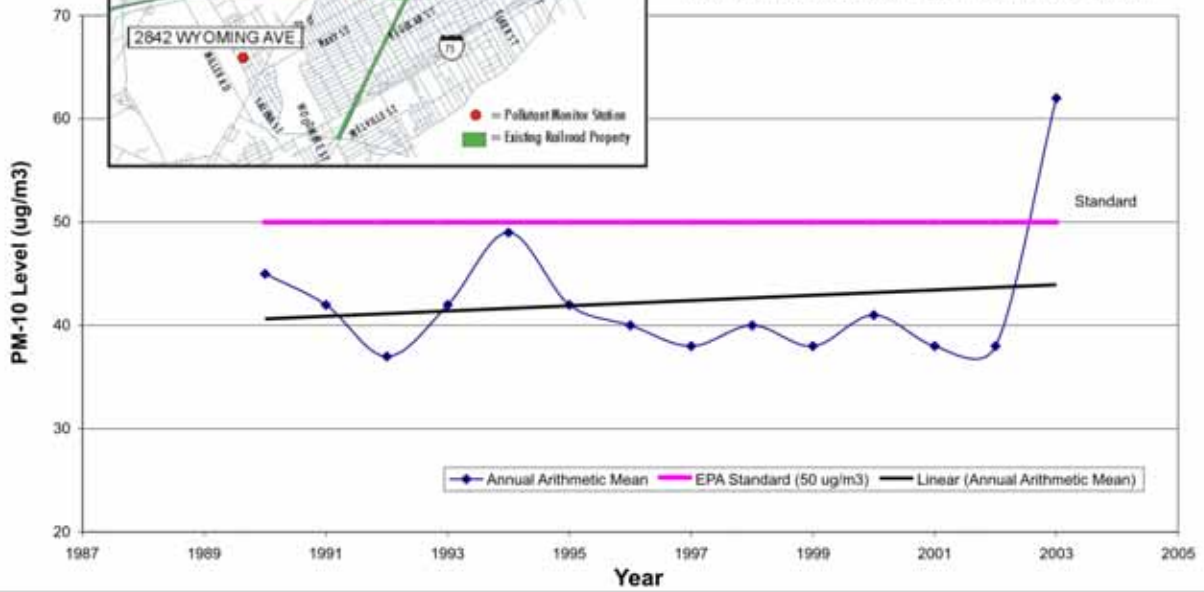
24-hr Average

Station: 26-163-0033 at 2842 Wyoming Avenue, Dearborn



Monitored Pollutant:
Particulate Matter (PM-10)
Annual Mean

Station: 26-163-0033 at 2842 Wyoming Avenue, Dearborn



Particulates come directly from cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads, stone crushing, and burning of wood. They also form as burning fuels react with sunlight and water vapor. PM10 is ten microns or larger in size.

SOURCE: U.S. EPA AirData

L:/Projects/2846-A/Graphics/Enviro/AirData.cdr

Figure 4-37
CP/Oak and CN/Moterm Terminal Areas

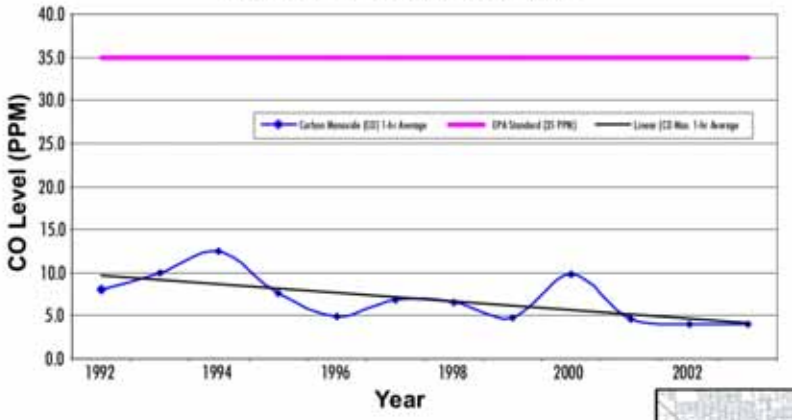
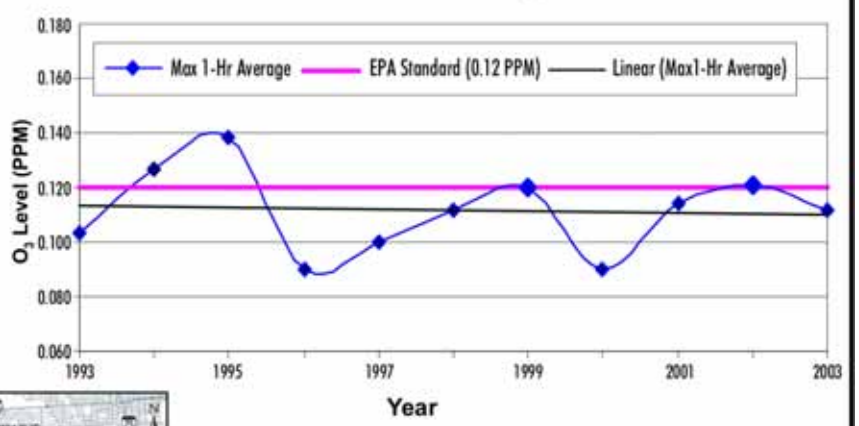
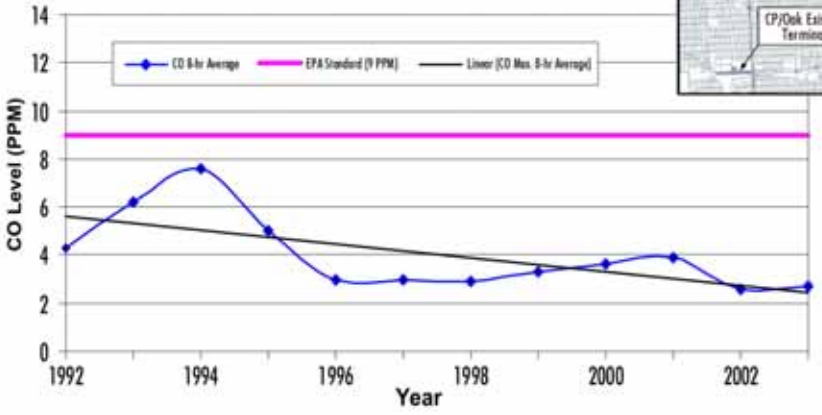
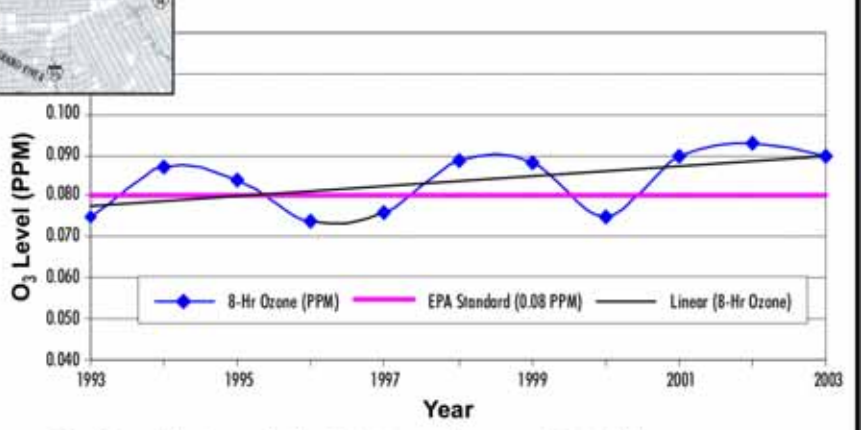


Figure 4-38
CP/Oak and CN/Moterm Terminal Areas





Note: CO is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Diesel engines produce less CO than gasoline engines.

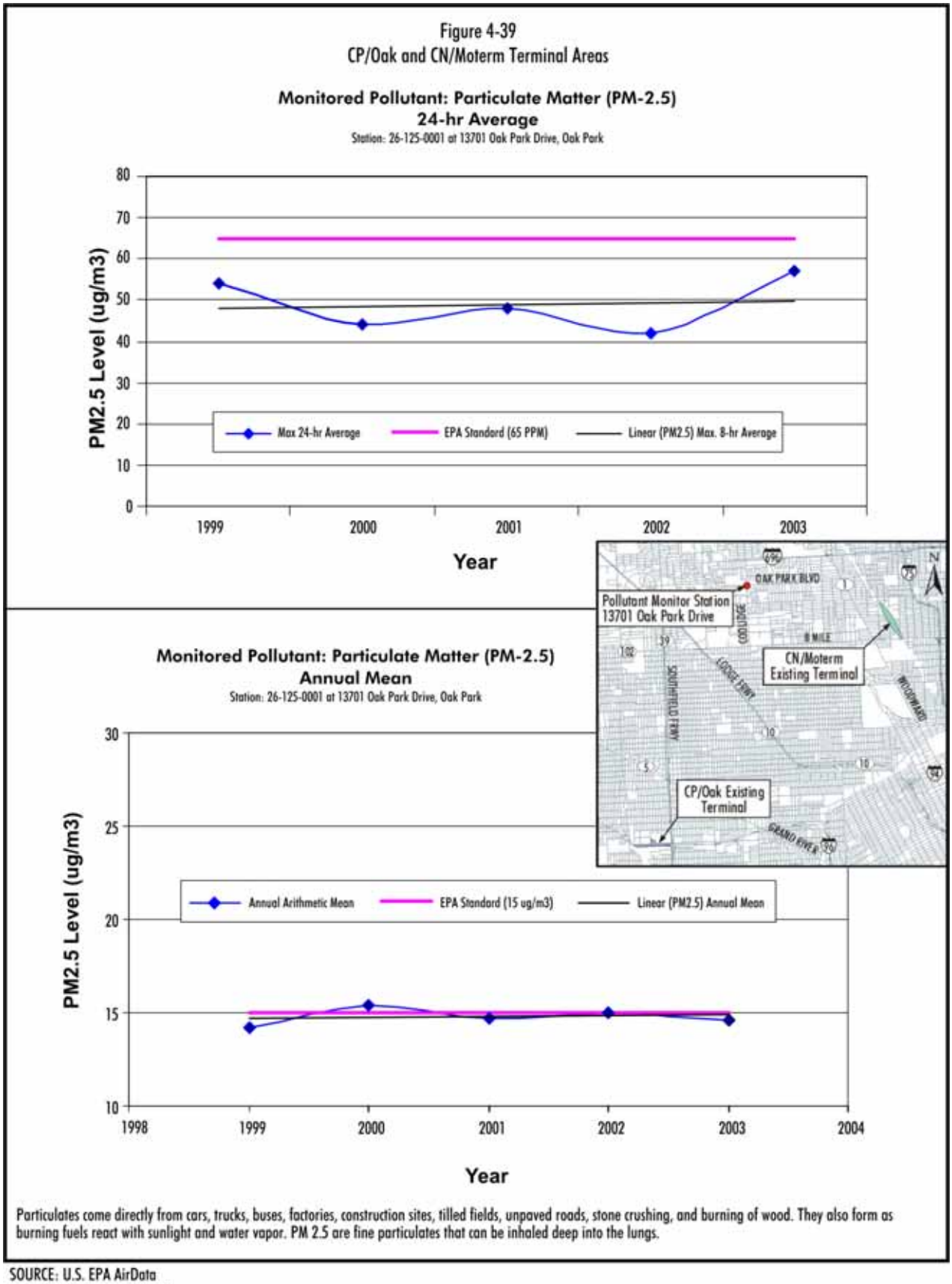


Note: Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx, and VOC, that help to form ground-level ozone.

SOURCE: U.S. EPA AirData

L:/Projects/2846-A/Graphics/Enviro/Air-Data2.cdr

Figure 4-39
CP/Oak and CN/Moterm Terminal Areas



Particulates come directly from cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads, stone crushing, and burning of wood. They also form as burning fuels react with sunlight and water vapor. PM 2.5 are fine particulates that can be inhaled deep into the lungs.

SOURCE: U.S. EPA AirData
L:/Projects/2846-A/Graphics/Enviro/AirData2.cdr

In addition to the uncertainty associated with quantifying the health risks of air toxics and $PM_{2.5}$, issues related to quantifying impacts and the lack of standards have been raised. There are no NAAQS for air toxics, and methods for quantifying impacts are subject to scientific debate. Unlike smokestack testing for point sources, it is not feasible to directly measure mobile source emissions, given the number of tailpipes that would constitute any inventory. Modeling approaches, however, can provide a tool to assess project impacts and to compare the relative merits of various control strategies or project alternatives. But, although transportation and air quality models are constantly being tested and improved, models to calculate the dispersion of $PM_{2.5}$ and air toxics, and the resulting concentrations at any given point, have not been adopted for regulatory use.

These limitations preclude, at this time, the DIFT Study from conducting a quantitative pass/fail comparison to standards for air toxics and $PM_{2.5}$. Nevertheless, in order to gain some insight into the relative differences among the alternatives with regard to air toxics and $PM_{2.5,}$ the pollutant burdens of the proposed alternatives are determined for all terminal sites and on the surrounding roadway network. This approach is consistent with the requirements of 40 CFR 1502.22 and 1502.24.

4.8.4 Terminal Pollutant Burden Estimates

For each terminal, an area has been defined that covers the existing yard and any area of potential terminal expansion (Figures 4-40, 4-41, 4-42, and 4-43). Within these areas, the total pollution emitted has been calculated in tons per year for 2004, 2015, and 2025 for each alternative. The pollution burden analysis addresses:

- Visitor and employee traffic on the rail yard.
- Truck activity on the rail yard related to container delivery and pickup.
- Container handling on the yard - moving containers between delivery points and trains.
- Locomotive idling and movement on the yard.
- Fugitive dust from paved and unpaved yard areas.
- Vehicular travel on sites of businesses to be acquired.
- Vehicular travel on streets that would be inside the terminal with project development: John Kronk and a section of Lonyo.
- Fugitive dust from business sites and the public streets that would be closed.

The terminal pollutant burden has been calculated for the following NAAQS pollutants: carbon monoxide (CO), hydrocarbons (HC), oxides of nitrogen (NOx), particulates of 10 microns or smaller (PM_{10}), particulates of 2.5 microns or smaller ($PM_{2.5}$), and volatile organic compounds (VOC). It has likewise been calculated for the following air toxics: benzene, 1,3-butadiene, formaldehyde, acetaldehyde, acrolein, and diesel particulate matter (DPM).

This information has been estimated for both on-road vehicles (cars and trucks) and non-road equipment (lifters, locomotives and other rail yard equipment) operating at a terminal. The emission factors (in grams/mile) for on-road sources (cars and trucks) are developed from MOBILE6.2. These factors are available for both NAAQS pollutants and air toxics. Emission factors for mobile source activity at 2.5 miles per hour were used to estimate idling conditions on the terminal yards because MOBILE6.2 does not generate emission factors for idling vehicles. The burden for on-road activity was based on vehicle miles of travel on the site.

Figure 4-40
Livernois-Junction Terminal
Air Quality Impact
Analysis Study Area
Study Area Boundary
N
SOURCE: The Corradino Group of Michigan, Inc.

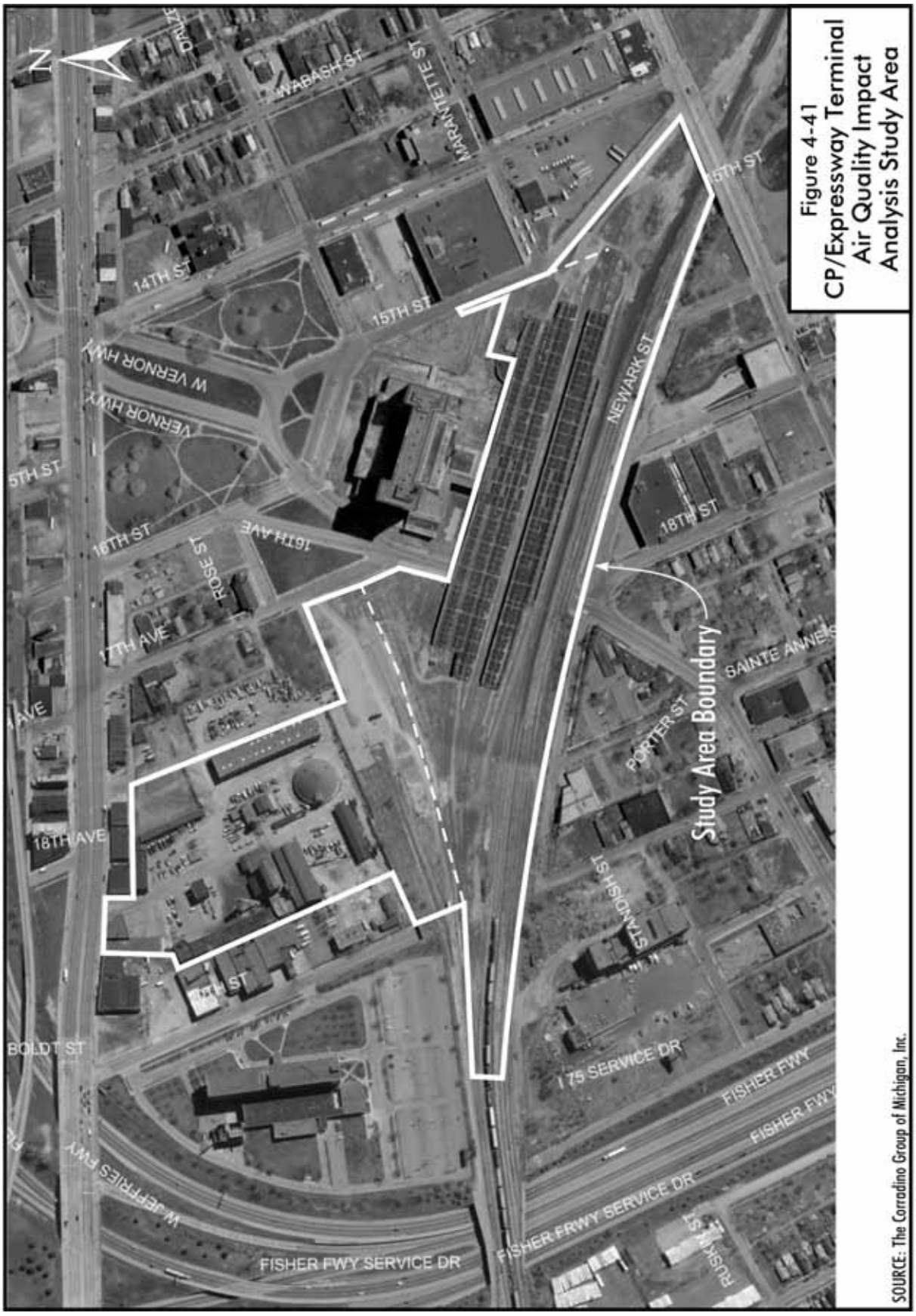


Figure 4-41
CP/Expressway Terminal
Air Quality Impact
Analysis Study Area
N
WABASH ST
MARIANETTE ST
14TH ST
15TH ST
W VERNOR HWY
VERNOR HWY
5TH ST
16TH ST
16TH AVE
ROSE ST
17TH AVE
18TH AVE
BOLDT ST
W JEFFRIES FWY
FISHER FWY SERVICE DR
NEWARK ST
18TH ST
Study Area Boundary
SAINTE ANNE
PORTER ST
STANDISH ST
I 75 SERVICE DR
FISHER FWY
FISHER FWY SERVICE DR
RUSKIN ST
SOURCE: The Corradino Group of Michigan, Inc.

N
W Davison St
Study Area Boundary
Artesian St
Glendale St
I-96
E Borman Ave
Capitol St
Fitzpatrick St
Evergreen Service Driv
Heyden St
Kentfield St
W Davison St
Figure 4-42
CP/Oak Terminal
Air Quality Impact
Analysis Study Area
SOURCE: The Corradino Group of Michigan, Inc.

Figure 4-43
CN/Moterm Terminal
Air Quality Impact
Analysis Study Area

SOURCE: The Corradino Group of Michigan, Inc.
L:/Projects/2846A/Graphics/AirQuality/MotermStdyA.cdr

Emissions from terminal tractors, hostlers and cranes were estimated using *Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compression-Ignition*, EPA420-P-04-009, April 2004 and other technical guidance that support EPA's NONROAD model. Emission factors for non-road air toxics were taken from technical documents supporting EPA's 1999 National Toxics Inventory, in consultation with EPA and SEMCOG. Information regarding equipment and usage activity at each terminal was obtained through interviews with terminal managers.

Emission factors for locomotives were obtained from EPA's 1997 "Emission Factors for Locomotives" (EPA420-F-97-051). A load factor, representing the portion of the engine's horsepower needed for an activity, was applied to the emission factor in order to obtain a realistic emission estimate. $PM_{2.5}$ emissions estimates were derived using a $PM_{2.5}$ fraction of 0.97 as recommended by EPA April 2004. The burden for locomotives was based on the number of hours of operation on the site. Emission factors for locomotive air toxics were derived from the 1999 National Toxics Inventory technical document.

The burden analysis includes estimates of emission sources located outside the currently active terminals, extending to the limits of the expansion areas, i.e., Figures 4-40 through 4-43. Therefore, traffic of businesses to be relocated due to terminal expansion were added to the base-year total, but subtracted from the build alternatives when such facilities are removed by an alternative. And, the emissions from roads that will be closed and included within the footprint of a terminal were similarly included in the base year, but subtracted from the alternatives that close these roads to public use. Examples are John Kronk Street and Lonyo Avenue.

The $PM_{2.5}$ burden analysis includes fugitive dust emissions. Project-related dust emissions are important in this analysis because the build alternatives would reduce PM emissions by covering unpaved surfaces including exposed soil in terminal areas. This paving is built into the Action Alternatives and is not considered mitigation. Road/soil dust tends to have a lower percentage of $PM_{2.5}$ than diesel particulate matter; however, the sheer size of the unpaved terminal areas (e.g., at the Livernois-Junction Yard) represents a significant part of the total PM emissions (including $PM_{2.5}$) that could be reduced by paving these areas. In the case of the Livernois-Junction Yard, analyses show that road/soil dust is a nuisance to DIFT neighbors because road/soil emissions are cool and not as buoyant as diesel emissions so they fall in a localized area in high concentrations. Diesel emissions are hot and buoyant so they tend to rise in the atmosphere and disperse over a wider area in relatively lower concentrations. EPA's "Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources," revised December 2003, is the source of emission factors for fugitive dust emissions. The approximate acreage of unpaved area on each terminal was calculated using GIS mapping tools and verified by site visit. The estimates include individual calculations for roads as well as unpaved yards.

Data presented here are totals for each terminal for each alternative (Table 4-22a). Greater detail is provided in the *Air Quality Impact Analysis Technical Report*. In reviewing these results it is noted that nitrogen oxides (NOx) are good indicators of the overall pollution effects of the alternatives because they are diesel-engine based (cars produce little) and the data do not involve other considerations (like the dust with PM data). NOx is expected to drop from existing conditions to 2025 No Action conditions, increase under Alternative 2, then decrease somewhat under Alternatives 3 and 4. This pattern reflects: 1) the future drop in emissions from cleaner engines and fuels; then, 2) the increases related to more lifts affected by the efficiencies of operation brought about by Alternatives 3 and 4.

Alternative 1: No Action would experience reductions across the range of most pollutants, including mobile source air toxics (MSATs), compared to current conditions, except particulate matter (PM). This overall positive trend is forecast to result from lower on-road, non-road, and locomotive emissions factors associated with cleaner fuels and cleaner engines, as prescribed by EPA. The PM increase is the exception and that is mainly due to increased activity on the unpaved terminal surfaces under Alternative 1.

For Alternative 2: Improve/Expand Existing Terminals, most pollutants are forecast to be lower than existing conditions and to increase marginally over 2025 No Action conditions as the intermodal activity (lifts) are forecast to increase by almost 80 percent with improving/expanding the terminals. PM_{10} would be reduced relative to the 2025 No Action conditions, as dust would be controlled by paving. $PM_{2.5}$ would be virtually unchanged overall. Paving would tend to reduce $PM_{2.5}$, while increased intermodal activity would tend to increase it.

Alternative 3 would consolidate all intermodal operations at the Livernois-Junction Yard area. In that area, terminal pollutant burdens would increase over both No Action and Alternative 2 conditions because of the significant increase in intermodal activity (80 to 130 percent, respectively).

Alternative 4 is forecast to be associated with terminal pollutant burdens in this area at virtually the same amounts as No Action and Alternative 2, even though the intermodal activity of the Livernois-Junction Yard area is forecast to more than double. A similar comparison exists for the CN/Moterm terminal under Alternative 4.

Increased intermodal activity will shift freight from trucks to rail. This would reduce mileage and pollution. The expected reduction for Wayne County and the seven-county SEMCOG region is presented in Table 4-22b.

Further information regarding the sources of the various pollutants at the terminals is presented in Table 4-23. The regulated on-road sources include automobiles and trucks. The recently regulated off-road vehicles include the container handling equipment and locomotives. Road and yard dust is shown separately because it is the volume of such material.

Table 4-22a
Terminal Burdens – Annual Tons

	CO	HC	NOx	PM10	PM2.5	VOCs	DPM	BENZ	BUTA	FORM	ACET	ACRO
2004												
SW Detroit/E Dearborn[a]	41.3	7.0	93.9	177.3	43.5	7.1	6.3	0.13	0.02	0.63	0.29	0.04
CP/Oak	9.5	1.8	25.7	29.2	8.6	1.8	1.9	0.03	0.01	0.19	0.09	0.01
CN/Moterm	6.4	1.1	14.1	4.4	1.8	1.1	1.0	0.02	0.004	0.14	0.07	0.01
Totals	**57.2**	**9.9**	**133.7**	**210.9**	**53.9**	**10.0**	**9.2**	**0.18**	**0.03**	**0.96**	**0.45**	**0.06**
Alt. 1 – 2025 No Action												
SW Detroit/E Dearborn[a]	18.2	3.9	28.3	227.1	47.3	3.9	1.2	0.07	0.02	0.41	0.19	0.03
CP/Oak	4.1	1.1	7.8	36.9	10.9	1.1	0.3	0.02	0.005	0.13	0.06	0.01
CN/Moterm	1.5	0.5	5.2	5.1	1.4	0.5	0.2	0.01	0.003	0.05	0.02	0.003
Totals	**23.8**	**5.5**	**41.3**	**269.1**	**59.6**	**5.5**	**1.7**	**0.09**	**0.03**	**0.59**	**0.27**	**0.04**
Alt. 2 – 2025 Improve/Expand												
SW Detroit/E Dearborn[a]	21.4	5.8	37.9	185.8	47.2	5.9	1.6	0.10	0.02	0.65	0.30	0.04
CP/Oak	3.3	1.6	9.6	21.7	5.8	1.6	0.4	0.03	0.01	0.20	0.09	0.01
CN/Moterm	1.9	0.7	6.4	8.8	2.4	0.7	0.2	0.01	0.004	0.08	0.04	0.005
Totals	**26.6**	**8.1**	**53.9**	**216.3**	**55.4**	**8.2**	**2.2**	**0.13**	**0.03**	**0.93**	**0.43**	**0.06**
Alt. 3 - 2025 Consolidate												
Livernois-Junction	**15.2**	**8.1**	**46.5**	**204.8**	**52.8**	**8.1**	**2.1**	**0.13**	**0.03**	**1.00**	**0.47**	**0.07**
Alt. 4 - 2025 Composite												
SW Detroit/E Dearborn[a]	13.0	7.2	39.1	160.9	41.6	7.2	1.8	0.12	0.03	0.90	0.42	0.06
CN/Moterm	1.9	0.7	6.4	8.8	2.4	0.7	0.2	0.01	0.004	0.08	0.04	0.005
Totals	**14.9**	**7.9**	**45.4**	**169.8**	**44.0**	**7.9**	**2.0**	**0.13**	**0.03**	**0.98**	**0.46**	**0.06**

[a]Includes the Livernois-Junction Yard, Expressway, Delray, and Triple Crown terminals.
Note: VOCs are volatile organic compounds, DPM is diesel particulate mater, BENZ is benzene, BUTA is 1,3, butadiene, FORM is formaldehyde, ACET is acetaldehyde, and ACRO is acrolein.
Source: The Corradino Group of Michigan, Inc.

Table 4-22b
Reduction of Pollutants Due to Truck-to-Rail Diversion for Each Action Alternative

	CO	HC	NOx	PM10	PM2.5	VOCs	DPM	BENZ	BUTA	FORM	ACET	ACRO
In Wayne Co.												
Totals	**17.8**	**16.1**	**33.8**	**3.0**	**1.7**	**15.9**	**1.7**	**0.17**	**0.10**	**1.30**	**0.48**	**0.06**
In Southeast Michigan												
Totals	**48.7**	**37.7**	**128.9**	**11.8**	**6.7**	**37.2**	**6.7**	**0.41**	**0.24**	**3.05**	**1.12**	**0.14**

Note: VOCs are volatile organic compounds, DPM is diesel particulate mater, BENZ is benzene, BUTA is 1,3, butadiene, FORM is formaldehyde, ACET is acetaldehyde, and ACRO is acrolein.
Source: The Corradino Group of Michigan, Inc.

Table 4-23
Terminal Burden by Activity Type – Annual Tons

	CO	HC	NOx	PM10	PM2.5	VOCs	DPM	BENZ	BUTA	FORM	ACET	ACRO
2004												
Automobiles/Trucks	29.7	2.8	17.7	0.5	0.4	2.8	0.5	0.07	0.01	0.11	0.04	0.00
Container Handling	21.7	5.0	77.1	7.5	7.3	5.0	7.3	0.10	0.01	0.76	0.38	0.06
Locomotives	5.8	2.1	38.9	1.5	1.4	2.2	1.4	0.01	0.01	0.09	0.03	0.00
Road/Yard Dust	0.0	0.0	0.0	201.4	44.8	0.0	0.0	0.00	0.00	0.00	0.00	0.00
Totals	**57.2**	**9.9**	**133.7**	**210.9**	**53.9**	**10.0**	**9.2**	**0.18**	**0.03**	**0.96**	**0.45**	**0.06**
Alt. 1 - 2025 No Action												
Automobiles/Trucks	12.4	1.0	1.5	0.2	0.2	1.0	0.1	0.02	0.01	0.05	0.02	0.00
Container Handling	2.6	2.7	5.5	0.4	0.4	2.7	0.5	0.05	0.01	0.40	0.20	0.03
Locomotives	8.8	1.8	34.3	1.2	1.1	1.8	1.1	0.02	0.01	0.14	0.05	0.01
Road/Yard Dust	-	-	-	267.3	57.9	-	-	-	-	-	-	-
Totals	**23.8**	**5.5**	**41.3**	**269.1**	**59.6**	**5.5**	**1.7**	**0.09**	**0.03**	**0.59**	**0.27**	**0.04**
Alt. 2 - 2025 Improve/Expand												
Automobiles/Trucks	11.5	1.4	2.3	0.4	0.2	1.4	0.1	0.02	0.01	0.09	0.03	0.00
Container Handling	4.2	4.5	9.2	0.7	0.7	4.5	0.7	0.09	0.01	0.67	0.34	0.05
Locomotives	10.9	2.2	42.4	1.4	1.4	2.3	1.4	0.02	0.01	0.17	0.06	0.01
Road/Yard Dust	-	-	-	213.8	53.1	-	-	-	-	-	-	-
Totals	**26.6**	**8.1**	**53.9**	**216.3**	**55.4**	**8.2**	**2.2**	**0.13**	**0.03**	**0.93**	**0.43**	**0.06**
Alt. 3 - 2025 Consolidate												
Automobiles/Trucks	1.8	1.3	2.4	0.4	0.3	1.2	0.2	0.01	0.01	0.10	0.04	0.00
Container Handling	4.8	5.1	10.5	0.9	0.8	5.1	0.8	0.11	0.01	0.77	0.38	0.06
Locomotives	8.6	1.7	33.6	1.1	1.1	1.8	1.1	0.01	0.01	0.13	0.05	0.01
Road/Yard Dust	-	-	-	202.4	50.6	-	-	-	-	-	-	-
Totals	**15.2**	**8.1**	**46.5**	**204.8**	**52.8**	**8.1**	**2.1**	**0.13**	**0.03**	**1.00**	**0.47**	**0.07**
Alt. 4 - 2025 Composite												
Automobiles/Trucks	1.68	1.1	2.1	0.30	0.23	1.08	0.15	0.01	0.01	0.09	0.03	0.00
Container Handling	4.71	5.1	10.3	0.90	0.78	5.08	0.78	0.10	0.01	0.76	0.38	0.06
Locomotives	8.5	1.7	33.0	1.12	1.1	1.7	1.1	0.0	0.0	0.1	0.1	0.0
Road/Yard Dust	-	-	-	167.5	41.9	-	-	-	-	-	-	-
Totals	**14.9**	**7.9**	**45.4**	**169.8**	**44.0**	**7.9**	**2.0**	**0.13**	**0.03**	**0.98**	**0.46**	**0.06**

Note: VOCs are volatile organic compounds, DPM is diesel particulate mater, BENZ is benzene, BUTA is 1,3, butadiene, FORM is formaldehyde, ACET is acetaldehyde, and ACRO is acrolein.
Source: The Corradino Group of Michigan, Inc.

4.8.5 Public Roadway Pollutant Burden Estimates

A network of local roads near each terminal that could be influenced by the project has been identified (Figures 4-44 to 47). These include roads that would: 1) be used by new DIFT traffic; 2) have traffic changes due to the closure of Lonyo; or, 3) experience changes in auto and truck traffic as businesses are relocated to accommodate terminal development.

The traffic changes resulting from each alternative are summarized as follows:

- Alternative 1: No Action
  - ✓ Background auto and truck traffic will grow 25 percent between 2000 and 2025.
- Alternative 2: Improve/Expand Existing Terminals
  - ✓ Livernois-Junction Yard – DIFT trucks will use either Wyoming or Livernois. (Under Option A that maintains the Dix/Waterman/Vernor gate, traffic could use Livernois/Dragoon south of Dix, but in Options B and C, all Livernois traffic would be to/from the north on Livernois and connect with I-94, and Dragoon will not be a route to the intermodal terminal.)
  - ✓ CP/Expressway terminal – Traffic would link directly to Michigan Avenue, rather than using 14th Street.
  - ✓ CP/Oak terminal – A new entrance direct to Evergreen and the ramps linking to I-96 would be created, ending intermodal truck use of the Southfield Freeway frontage roads and such local streets as Artesian.
  - ✓ CN/Moterm terminal – Intermodal truck traffic would be eliminated from Fair and Chesterfield Streets, as the terminal would be accessed directly south of 8 Mile Road into the State Fairgrounds.
- Alternative 3: Consolidate – DIFT truck traffic would use Wyoming and Livernois (north of the terminal gate). Local traffic on Lonyo would either shift to Central or to Wyoming, when Lonyo is closed at the rail yard boundaries. Intermodal activity would be eliminated at other terminals.
- Alternative 4: Composite – The approach is similar to Alternative 3 at the Livernois-Junction yard and the same as Alternative 2 at CN/Moterm, as CN operations would not be consolidated, but expand into the State Fairgrounds.

Using available information on background traffic levels, traffic shifts were calculated, with new intermodal truck traffic added, and traffic from displaced businesses removed. The vehicle miles of travel were calculated by link, and, using estimated speeds, the pollutant burden for each link was calculated.

Table 4-24 shows the results for autos and trucks. The auto component of local road traffic produces the majority of the pollution, due to the much greater number of cars than trucks on the roadway system. This is particularly so for CO and hydrocarbons (HC). Trucks produce far more NOx per vehicle. Particulates are also produced more heavily by trucks, despite the fact that they are fewer in number. Nevertheless, even for NOx and particulates, in the future, no more than 30 percent is produced on the local road network by trucks.

Figure 4-44
Public Road Burden
Analysis Links (White Bands)
for Livernois-Junction Yard
LIVERNOIS
DRAGOON
LIVERNOIS
JOHN KRONK
CENTRAL
LONYO
Realignment of Future
Section of Future
JOHN KRONK
Future Interchange
WYOMING
WYOMING
LEGEND
Location of Highest Estimated
CO Concentration
Existing Terminal Boundary
Consolidate - Alternative 3
Composite - Alternative 4
Expand Existing Terminals
White lines depict roadway network
used in Burden Analysis
SOURCE: The Corradino Group of Michigan, Inc.

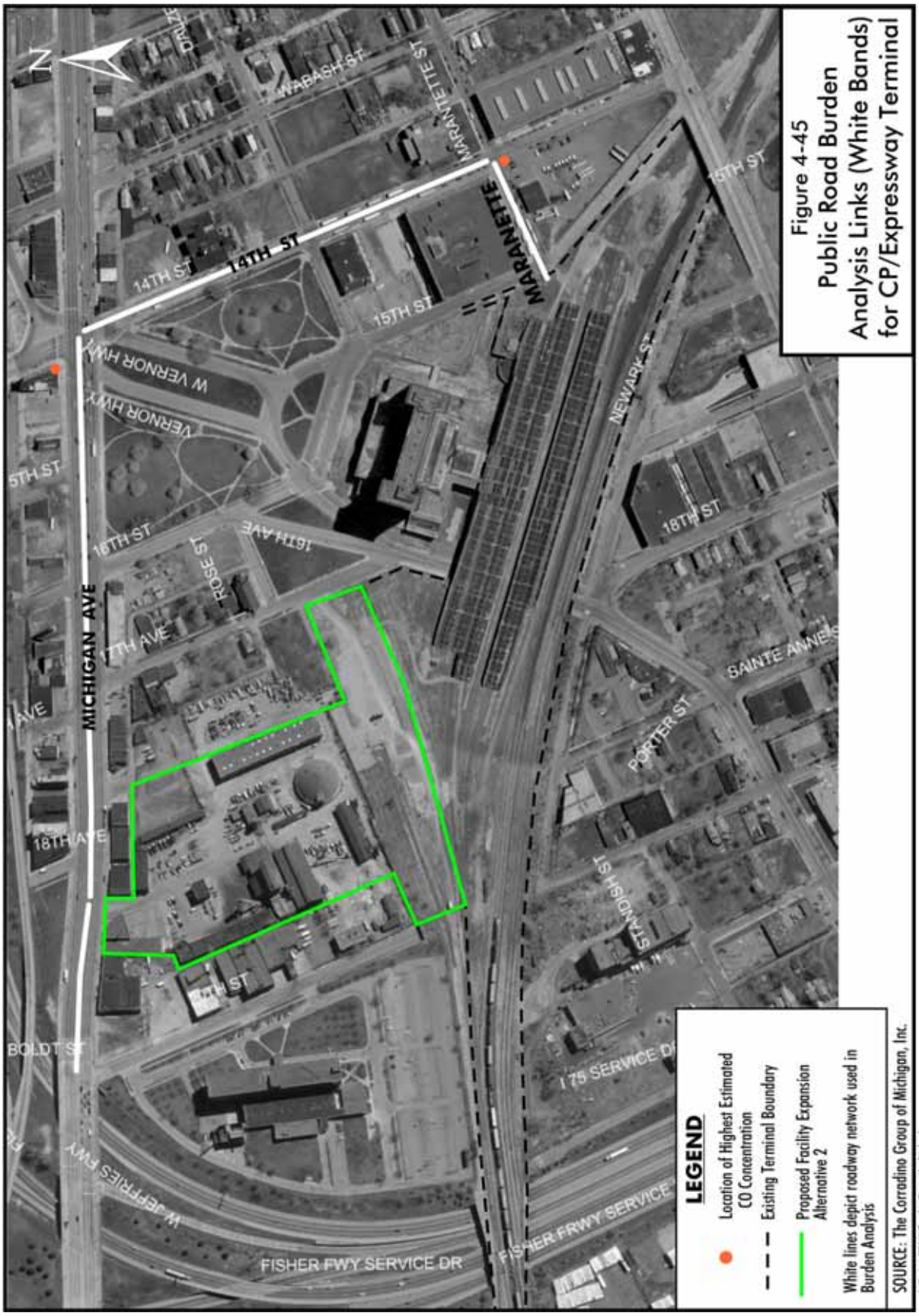
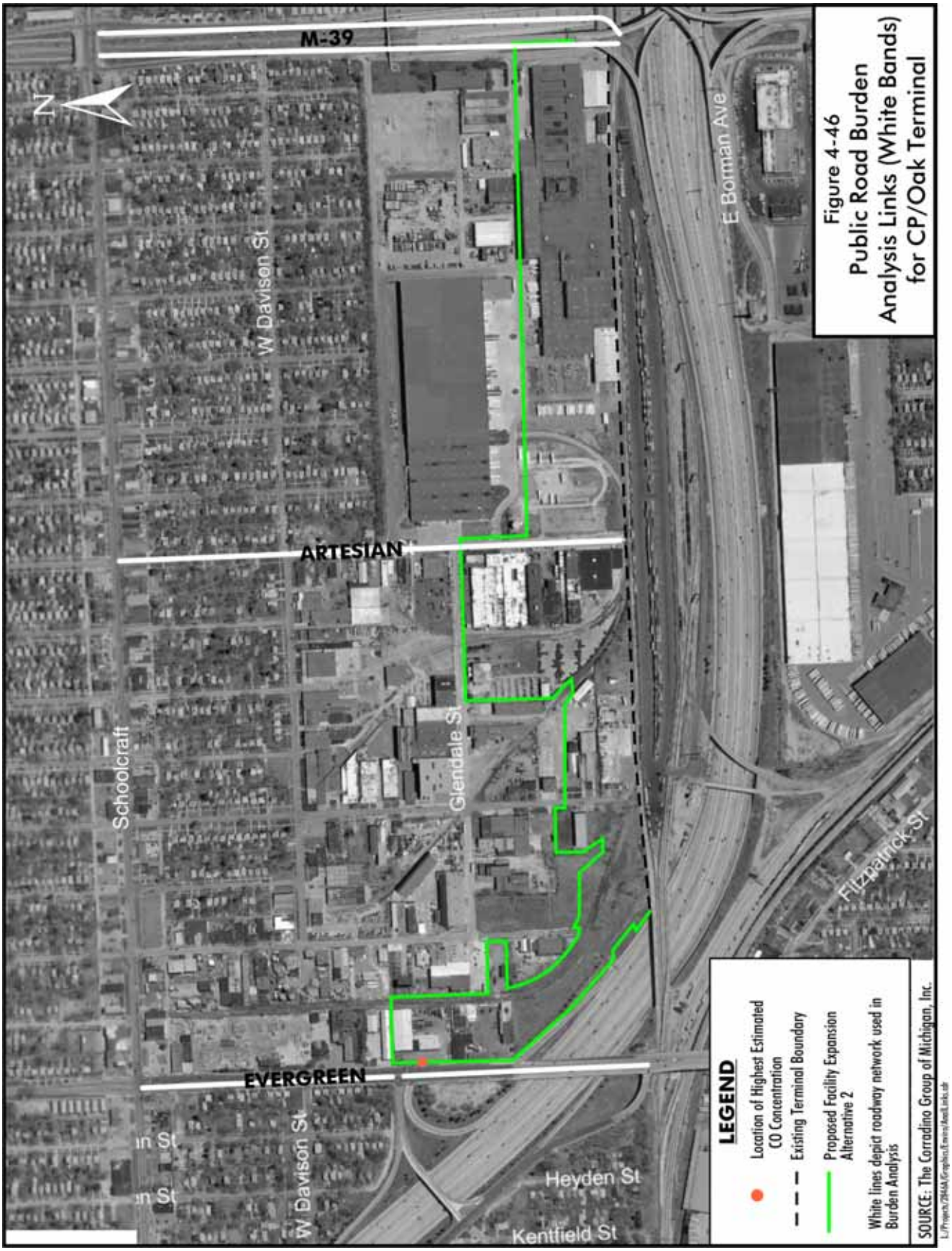


Figure 4-45
Public Road Burden
Analysis Links (White Bands)
for CP/Expressway Terminal
N
WABASH ST
MARANETTE ST
14TH ST
15TH ST
MARANETTE
W VERNOR HWY
VERNOR HWY
5TH ST
16TH AVE
ROSE ST
17TH AVE
MICHIGAN AVE
18TH AVE
BOLDT ST
W JEFFRIES FWY
FISHER FWY SERVICE DR
NEWARK ST
18TH ST
SAINTE ANNE
PORTER ST
STANDISH ST
I 75 SERVICE DR
LEGEND
Location of Highest Estimated CO Concentration
Existing Terminal Boundary
Proposed Facility Expansion Alternative 2
White lines depict roadway network used in Burden Analysis
SOURCE: The Corradino Group of Michigan, Inc.


M-39
N
W Davison St
E Borman Ave
ARTESIAN
Schoolcraft
Glendale St
Fitzpatrick St
EVERGREEN
W Davison St
Heyden St
Kentfield St
Figure 4-46
Public Road Burden
Analysis Links (White Bands)
for CP/Oak Terminal
LEGEND
Location of Highest Estimated CO Concentration
Existing Terminal Boundary
Proposed Facility Expansion Alternative 2
White lines depict roadway network used in Burden Analysis
SOURCE: The Corradino Group of Michigan, Inc.

L:/Projects/2846A/Graphics/Enviro/AnalLinks.cdr

Table 4-24

Public Roadway Pollutant Burden

	Auto											
	Tons Per Year											
	CO	HC	NOx	PM10	PM2.5	VOC	DPM	BENZ	BUTA	FORM	ACET	ACRO
2004												
Livernois-Junction	523.9	34.5	29.3	0.76	0.37	34.7	0.0	1.25	0.13	0.27	0.12	0.014
Expressway	73.3	4.7	4.0	0.11	0.05	4.7	0.0	0.17	0.02	0.04	0.02	0.002
CP/Oak	181.1	10.9	9.6	0.25	0.12	10.9	0.0	0.40	0.04	0.09	0.04	0.005
CN/Moterm	486.2	28.8	25.7	0.67	0.32	28.9	0.0	1.07	0.11	0.24	0.10	0.012
Totals	1264.5	78.9	68.6	1.79	0.86	79.2	0.0	2.89	0.30	0.64	0.28	0.033
2025 Alt. 1: No Action												
Livernois-Junction	315.4	10.4	7.7	0.87	0.39	10.4	0.0	0.41	0.04	0.08	0.04	0.004
Expressway	43.9	1.4	1.0	0.12	0.05	1.4	0.0	0.06	0.01	0.01	0.00	0.001
CP/Oak	107.9	3.2	2.5	0.29	0.13	3.3	0.0	0.13	0.01	0.03	0.01	0.001
CN/Moterm	289.2	8.5	6.7	0.77	0.35	8.6	0.0	0.35	0.03	0.07	0.03	0.004
Totals	756.4	23.5	17.9	2.05	0.92	23.7	0.0	0.95	0.09	0.19	0.08	0.010
2025 Alt. 2: Improve/Expand												
Livernois-Junction	323.0	10.6	7.9	0.89	0.40	10.7	0.0	0.42	0.04	0.08	0.04	0.004
Expressway	43.9	1.4	1.0	0.12	0.05	1.4	0.0	0.06	0.01	0.01	0.00	0.001
CP/Oak	107.6	3.2	2.5	0.29	0.13	3.2	0.0	0.13	0.01	0.03	0.01	0.001
CN/Moterm	289.2	8.5	6.7	0.77	0.35	8.6	0.0	0.35	0.03	0.07	0.03	0.004
Totals	763.7	23.7	18.1	2.07	0.94	23.9	0.0	0.96	0.09	0.19	0.07	0.010
2025 Alt. 3: Consolidate												
Livernois-Junction	300.0	9.9	7.3	0.82	0.37	10.0	0.0	0.39	0.04	0.07	0.03	0.004
Expressway	43.9	1.4	1.0	0.12	0.05	1.4	0.0	0.06	0.01	0.01	0.00	0.001
CP/Oak	107.9	3.2	2.5	0.29	0.13	3.3	0.0	0.13	0.01	0.03	0.01	0.001
CN/Moterm	289.2	8.5	6.7	0.77	0.35	8.6	0.0	0.35	0.03	0.07	0.03	0.004
Totals	741.0	23.0	17.5	2.00	0.90	23.3	0.0	0.93	0.09	0.18	0.07	0.010
2025 Alt. 4: Composite												
Livernois-Junction	301.4	10.0	7.4	0.83	0.38	10.0	0.0	0.39	0.04	0.08	0.03	0.004
Expressway	43.9	1.4	1.0	0.12	0.05	1.4	0.0	0.06	0.01	0.01	0.00	0.001
CP/Oak	107.9	3.2	2.5	0.29	0.13	3.3	0.0	0.13	0.01	0.03	0.01	0.001
CN/Moterm	289.2	8.5	6.7	0.77	0.35	8.6	0.0	0.35	0.03	0.07	0.03	0.004
Totals	742.4	23.1	17.6	2.01	0.91	23.3	0.0	0.93	0.09	0.19	0.07	0.010

	Truck											
	Tons Per Year											
	CO	HC	NOx	PM10	PM2.5	VOC	DPM	BENZ	BUTA	FORM	ACET	ACRO
2004												
Livernois-Junction	8.0	1.7	31.3	1.13	0.97	1.73	0.97	0.02	0.05	0.14	0.01	0.006
Expressway	0.9	0.2	3.9	0.14	0.12	0.20	0.12	0.00	0.01	0.02	0.00	0.001
CP/Oak	1.4	0.3	6.9	0.25	0.21	0.31	0.21	0.00	0.01	0.03	0.00	0.001
CN/Moterm	3.7	0.8	18.2	0.65	0.56	0.79	0.56	0.01	0.02	0.06	0.01	0.003
Totals	14.0	3.0	60.6	2.17	1.86	3.03	1.86	0.03	0.09	0.25	0.02	0.011
2025 Alt. 1: No Action												
Livernois-Junction	1.0	0.9	2.5	0.25	0.14	0.94	0.14	0.01	0.03	0.08	0.01	0.003
Expressway	0.1	0.1	0.3	0.03	0.02	0.11	0.02	0.00	0.00	0.01	0.00	0.000
CP/Oak	0.2	0.2	0.5	0.05	0.03	0.17	0.03	0.00	0.00	0.01	0.00	0.001
CN/Moterm	0.4	0.4	1.4	0.14	0.08	0.42	0.08	0.00	0.01	0.03	0.00	0.002
Totals	1.7	1.6	4.7	0.47	0.27	1.64	0.27	0.01	0.04	0.13	0.01	0.006
2025 Alt. 2: Improve/Expand												
Livernois-Junction	1.2	1.1	2.9	0.30	0.17	1.12	0.17	0.01	0.03	0.09	0.01	0.004
Expressway	0.1	0.1	0.3	0.03	0.02	0.10	0.02	0.00	0.00	0.01	0.00	0.000
CP/Oak	0.2	0.2	0.5	0.05	0.03	0.15	0.03	0.00	0.00	0.01	0.00	0.001
CN/Moterm	0.4	0.4	1.4	0.14	0.08	0.41	0.08	0.00	0.01	0.03	0.00	0.002
Totals	1.9	1.8	5.1	0.52	0.30	0.78	0.30	0.01	0.04	0.14	0.01	0.007
2025 Alt. 3: Consolidate												
Livernois-Junction	0.8	0.7	1.9	0.19	0.11	0.74	0.11	0.01	0.02	0.06	0.00	0.003
Expressway	0.1	0.1	0.3	0.03	0.02	0.10	0.02	0.00	0.00	0.01	0.00	0.000
CP/Oak	0.2	0.2	0.5	0.05	0.03	0.15	0.03	0.00	0.00	0.01	0.00	0.001
CN/Moterm	0.4	0.4	1.3	0.13	0.08	0.39	0.08	0.00	0.01	0.03	0.00	0.001
Totals	1.5	1.4	4.0	0.40	0.24	1.38	0.24	0.01	0.03	0.11	0.01	0.005
2025 Alt. 4: Composite												
Livernois-Junction	0.8	0.7	1.9	0.19	0.10	0.72	0.10	0.01	0.02	0.06	0.00	0.003
Expressway	0.1	0.1	0.3	0.03	0.02	0.10	0.02	0.00	0.00	0.01	0.00	0.000
CP/Oak	0.2	0.2	0.5	0.05	0.03	0.15	0.03	0.00	0.00	0.01	0.00	0.001
CN/Moterm	0.4	0.4	1.3	0.13	0.08	0.39	0.08	0.00	0.01	0.03	0.00	0.001
Totals	1.5	1.4	4.0	0.40	0.23	1.36	0.23	0.01	0.03	0.11	0.01	0.005

	Auto Plus Truck											
	Tons Per Year											
	CO	HC	NOx	PM10	PM2.5	VOC	DPM	BENZ	BUTA	FORM	ACET	ACRO
2004												
Livernois-Junction	532.0	36.2	60.6	1.89	1.34	36.4	0.97	1.27	0.18	0.41	0.13	0.020
Expressway	74.2	4.9	7.9	0.25	0.17	4.9	0.12	0.17	0.02	0.05	0.02	0.003
CP/Oak	182.5	11.2	16.5	0.50	0.33	11.2	0.21	0.41	0.05	0.11	0.04	0.006
CN/Moterm	489.9	29.5	43.9	1.32	0.88	29.7	0.56	1.08	0.13	0.30	0.11	0.015
Totals	1278.6	81.8	129.0	3.96	2.72	82.2	1.86	2.93	0.38	0.87	0.30	0.044
2025 Alt. 1: No Action												
Livernois-Junction	316.4	11.3	10.1	1.11	0.53	11.4	0.14	0.42	0.07	0.16	0.04	0.008
Expressway	44.0	1.5	1.4	0.15	0.07	1.5	0.02	0.06	0.01	0.02	0.01	0.001
CP/Oak	108.0	3.4	3.0	0.34	0.16	3.4	0.03	0.13	0.02	0.04	0.01	0.002
CN/Moterm	289.6	9.0	8.1	0.91	0.43	9.0	0.08	0.35	0.04	0.10	0.03	0.005
Totals	758.0	25.2	22.6	2.51	1.19	25.3	0.27	0.96	0.14	0.32	0.09	0.016
2025 Alt. 2: Improve/Expand												
Livernois-Junction	324.2	11.8	10.8	1.19	0.57	11.8	0.17	0.43	0.07	0.17	0.04	0.009
Expressway	44.0	1.5	1.3	0.15	0.07	1.5	0.02	0.06	0.01	0.02	0.01	0.001
CP/Oak	107.7	3.4	3.0	0.34	0.16	3.4	0.03	0.13	0.02	0.04	0.01	0.002
CN/Moterm	289.6	9.0	8.1	0.91	0.43	9.0	0.08	0.35	0.04	0.10	0.03	0.005
Totals	765.5	25.7	23.4	2.59	1.23	25.7	0.30	0.97	0.14	0.33	0.09	0.017
2025 Alt. 3: Consolidate												
Livernois-Junction	300.8	10.6	9.3	1.02	0.48	10.7	0.11	0.40	0.06	0.14	0.04	0.007
Expressway	44.0	1.5	1.3	0.15	0.07	1.5	0.02	0.06	0.01	0.02	0.01	0.001
CP/Oak	108.0	3.4	3.0	0.34	0.16	3.4	0.03	0.13	0.02	0.04	0.01	0.002
CN/Moterm	289.6	8.9	8.0	0.91	0.43	9.0	0.08	0.35	0.04	0.10	0.03	0.005
Totals	742.4	24.4	21.6	2.42	1.14	24.6	0.24	0.94	0.13	0.30	0.09	0.015
2025 Alt. 4: Composite												
Livernois-Junction	302.2	10.7	9.2	1.01	0.48	10.7	0.10	0.40	0.06	0.13	0.04	0.007
Expressway	44.0	1.5	1.3	0.15	0.07	1.5	0.02	0.06	0.01	0.02	0.01	0.001
CP/Oak	108.0	3.4	3.0	0.34	0.16	3.4	0.03	0.13	0.02	0.04	0.01	0.002
CN/Moterm	289.6	8.9	8.0	0.91	0.43	9.0	0.08	0.35	0.04	0.10	0.03	0.005
Totals	743.8	24.5	21.5	2.41	1.14	24.6	0.23	0.94	0.13	0.29	0.09	0.015

Note: VOCs are volatile organic compounds, DPM is diesel particulate mater, BENZ is benzene, BUTA is 1,3, butadiene, FORM is formaldehyde, ACET is acetaldehyde, and ACRO is acrolein.
Source: The Corradino Group of Michigan, Inc.

Car traffic is also forecast to produce more air toxics than trucks for every pollutant for the roadway network around each terminal, with the exception of the Livernois-Junction Yard area, under Alternative 2. Under the latter scenario, the total truck contribution of the formaldehyde burden is about 55 percent of the total. For all other alternatives, and for all terminals, MSATs for trucks represent no more than 40 percent of all toxic burdens for the entire roadway network.

The roadway network pollution burden of Alternative 1, i.e., No Action in 2025, shows substantial decreases in the emission burden on the local roadways compared to current conditions, even with an increase in intermodal activity. This results from cleaner engines and fuel as mandated by EPA.

In 2025, the forecast of pollutant burdens on the Alternative 2 roadway system display virtually no difference, compared to taking no action, even as the intermodal activity would increase. That condition exists because both roadway systems carry the same background traffic while DIFT truck traffic is a relatively small contributor to total traffic and total pollution burden. The only exception to this is when Lonyo is closed, auto and non-DIFT truck traffic is diverted, in part, to Central Avenue. Under Alternative 2, there are few business relocations in the area served by these streets. As a result, the pollution burdens generated by auto/truck traffic are expected to increase on Central between John Kronk and St. Stephen Streets in 2025 by about 150 pounds per year for NOx compared to the 2025 No Action Alternative; by about 20 pounds per year for PM_{10}; and, by about ten pounds per year for $PM_{2.5}$. The change in the air toxics burden generated by auto/truck traffic on Central Avenue between Alternative 2 and the No Action condition in 2025 is expected to be about ten pounds annually. The section of Central Avenue under the terminal would have equipment to vent the air directly above the terminal. These increases in pollutants just noted for Central Avenue are forecast to be matched by decreases along Lonyo.

To gauge the level of these air toxic burdens, it is noted that the natural gas burned in 15 homes to run the furnace and hot water heater generates ten pounds of air toxics annually.[34]

Alternatives 3 and 4 would have the greatest number of lifts and the greatest number of trucks serving those lifts. Nevertheless, the pollutant burden on the local roadway systems around the terminals would be slightly less than the No Action Alternative. The expansion of the Livernois-Junction Yard would require the relocation of a number of businesses, including several along John Kronk. The removal of the auto and truck trips of these businesses, and the more efficient movement of intermodal trucks to the terminal via expressway-to-arterial roadway connections would mean less traffic on several neighborhood streets. So, for Alternatives 3 and 4, the roadway pollutant burdens would be less than today, and slightly less than the No Action. For the CN/Moterm terminal, the roadway pollutant burdens would be virtually the same as No Action.

Increased intermodal activity will shift freight from truck to rail. This would reduce truck mileage and pollution. The expected reductions in Wayne County, alone, and in the seven-county SEMCOG region are presented at the bottom of Table 4-22b.

[34] Derived from data in U.S. EPA's AP-42, Compilation of Air Pollution Emission factors for natural gas combustion. Emissions are based on an average home natural gas use rate of 75,000 Btu/hr. for six months of the year.

4.8.6 CO Hot-spot Analysis

Carbon monoxide is a colorless, odorless, poisonous gas produced by incomplete combustion. Due to the air quality maintenance status of Southeast Michigan with respect to the NAAQS for CO, a carbon monoxide hotspot analysis was performed. The analysis compared estimated worst-case CO concentrations at sensitive receptors near a dozen intersections around the terminals to the one- and eight-hour NAAQS (Table 4-25). Sensitive receptors are locations where humans might be expected to be present.

Table 4-25
Worst Case CO Concentrations

One-hour

Term.	Intersection	Receptor	Ambient (ppm)	Worst-case Values (Standard is 35 ppm)				
				2004	2015		2025	
				Result	Alternative	Result	Alternative	Result
Liv-Jct	Wyoming @ Mercier	SE corner	3.8	4.5	Alt. 3	4.5	Alt. 3	4.5
Liv-Jct	Wyoming @ I-94 off ramp	NW corner	3.8	5.1	Alt. 3	5.1	Alt. 3	4.8
Liv-Jct	Lonyo @ Arnold	SW corner	3.8	5.3	Alt. 1	4.5	Alt. 2	4.5
Liv-Jct	Central @ St. Stephen	NE corner	3.8	6.0	Alt. 1	5.1	Alt. 2	5.0
Liv-Jct	Central @ Dix	NE corner	3.8	5.3	Alt. 1	4.5	Alt. 1	4.6
Liv-Jct	Livernois @ Kronk	NW corner	3.8	5.7	Alt. 3	5.2	Alt. 3	5.2
Liv-Jct	Livernois @ Lafayette	NE corner	3.8	4.6	Alt. 1	4.1	Alt. 1	4.1
Liv-Jct	Dragoon @ Lafayette	NE corner	3.8	4.6	Alt. 1	4.1	Alt. 1	4.1
Express.	Michigan @ 14th	SW corner	3.8	5.7	Alt. 4	4.9	Alt. 2	5.0
Express.	14th @ Maranette	SW corner	3.8	4.1	Alt. 4	3.7	Alt. 2	3.8
Oak	Evergreen @ I-96 Ramps	NW corner	4.0	8.7	Alt. 2	6.6	Alt. 2	6.4
Moterm	Eight Mile @ Fair Street	NW corner	4.0	5.9	Alt. 4	5.5	Alt. 2	5.4

Eight-hour

Term.	Intersection	Receptor	Ambient (ppm)	Worst-case Values (Standard is 9 ppm)				
				2004	2015		2025	
				Result	Alternative	Result	Alternative	Result
Liv-Jct	Wyoming @ Mercier	SE corner	2.3	2.8	Alt. 3	2.8	Alt. 3	2.8
Liv-Jct	Wyoming @ I-94 off ramp	NW corner	2.3	3.2	Alt. 3	3.2	Alt. 3	3.0
Liv-Jct	Lonyo @ Arnold	SW corner	2.3	3.3	Alt. 1	2.8	Alt. 2	2.8
Liv-Jct	Central @ St. Stephen	NE corner	2.3	3.7	Alt. 1	3.2	Alt. 2	3.1
Liv-Jct	Central @ Dix	NE corner	2.3	3.3	Alt. 1	2.8	Alt. 1	2.9
Liv-Jct	Livernois @ Kronk	NW corner	2.3	3.5	Alt. 3	3.2	Alt. 3	3.2
Liv-Jct	Livernois @ Lafayette	NE corner	2.3	2.9	Alt. 1	2.5	Alt. 1	2.5
Liv-Jct	Dragoon @ Lafayette	NE corner	2.3	2.9	Alt. 1	2.5	Alt. 1	2.5
Express.	Michigan @ 14th	SW corner	2.3	3.5	Alt. 4	3.0	Alt. 2	3.1
Express.	14th @ Maranette	SW corner	2.3	2.5	Alt. 4	2.3	Alt. 2	2.4
Oak	Evergreen @ I-96 Ramps	NW corner	2.6	5.4	Alt. 2	4.1	Alt. 2	4.0
Moterm	Eight Mile @ Fair Street	NW corner	2.6	3.7	Alt. 4	3.4	Alt. 2	3.3

Notes: 1-hr background concentrations (3.8 & 4.0 ppm) are the 2nd highest 1-hour values recorded at the Detroit Linwood (26-1630016) & Oak Park (26-125-0001) stations, respectively in 2002. The 8-hr background concentrations (2.3 & 2.6 ppm) are the 2nd highest 8-hour values recorded at these stations.

Source: The Corradino Group of Michigan, Inc.

This analysis is done with a computer program called CAL3QHC. It requires emission factors for various types of vehicles operating under various speeds and conditions (such as ambient temperature and fuel type), expressed in grams per mile. These emission factors are generated using the U.S. EPA-approved model, MOBILE6.2. Input parameters that go into the MOBILE6.2 model, such as the vehicle fleet mix and age, are drawn from SEMCOG in consultation with EPA and the Michigan Department of Environmental Quality (MDEQ). Traffic information for each alternative, along with information about roadway geometry and traffic flow conditions, are also used to determine the concentrations of CO at these sensitive receptors.

The highest one-hour and eight-hour CO concentrations are found on Evergreen Road at the CP/Oak terminal. This is true for 2004, 2015 and 2025. Estimates of one-hour CO concentrations for these years are 8.7, 6.6, and 6.4 ppm, respectively. The EPA standard is 35 ppm. Eight-hour values are 5.4, 4.1, and 4.0 ppm, respectively, compared to the standard of 9 ppm. All these values are well below standards. Conditions at all other intersections on Table 4-25 in all years under all scenarios are better.

4.8.7 FEIS Preferred Alternative Air Quality Analysis

This air quality section covers the analysis for the FEIS. Since the Air Quality Protocol (Appendix E) was developed, analysis methodologies have changed. This analysis for the FEIS reflects updates in intermodal activity for the No Action and Preferred Alternatives, as well as updates to monitor data and emission factors. Since the project began, the Southeast Michigan Council of Governments (SEMCOG) has updated the horizon year of its Regional Transportation Plan (RTP) to 2030.

The updated air quality analysis was not done for the DEIS Build alternatives, because the Preferred Alternative represents what the railroads have agreed to. So, the earlier Practical Alternatives are no longer considered practical and updating data to 2030 is not fruitful as the air quality analysis was not a determining factor in the decision-making process that arrived at the Preferred Alternative.

The air quality scope and methodology used in this FEIS are consistent with current guidance from the Federal Highway Administration (FHWA) and MDOT. Additional interagency consultation was held with the Southeast Michigan Council of Governments (SEMCOG), the U.S. Environmental Protection Agency (EPA) Region 5, and the Michigan Department of Environmental Quality (MDEQ). This air quality analysis covers the following topics:

1. An explanation of recent steps to improve air quality and past and future trend data;
2. A comparative analysis of the air quality effects of the Preferred and No Action Alternatives consistent with the National Environmental Policy Act (it covers terminal area and roadway pollutant burdens);
3. A quantitative analysis of Mobile Source Air Toxics (MSATs) consistent with the Interim Guidance on Air Toxics in NEPA Documents (FHWA, February 3, 2006) (terminal area and roadway);
4. The SEMCOG region's attainment status with respect to air quality standards and analyses that show project conformity to the Clean Air Act. Conformity analysis covers:
   - General conformity (as applicable; see 40 CFR 93.153(b)); and,
   - Transportation conformity. Project-level conformity determinations must meet several criteria (see 40 CFR 93.109(b)), including:

- Regional analysis: ozone, carbon monoxide (CO), and particulate matter ($PM_{2.5}$ and PM_{10}) as demonstrated by the project coming from a currently conforming transportation plan and Transportation Improvement Program (TIP); and,
- Hot-spot conformity (40 CFR 93.123 (b)(iii)):
  - CO (quantitative)
  - $PM_{2.5}$ (qualitative)
  - PM_{10} (qualitative)

5. Construction impacts.

With respect to global warming, to date no national standards have been established regarding greenhouse gases, nor has EPA established criteria or thresholds for greenhouse gas emissions. But, on April 2, 2007, the Supreme Court issued a decision in Massachusetts et al. v. Environmental Protection Agency et al. that the USEPA does have authority under the Clean Air Act to establish motor vehicle emissions standards for carbon dioxide CO_2 emissions. Carbon dioxide (CO_2) is a primary greenhouse gas. The USEPA is currently determining the implications of the Supreme Court decision on national policies and programs. However, the Court's decision did not have any direct implications on requirements for evaluating transportation projects. Further, because of the interactions among elements of the transportation system as a whole, project-level emissions analyses for greenhouse gases are less informative than those conducted at the regional, state, or national level. Because of these concerns, FHWA concludes that CO_2 emissions cannot be usefully evaluated in this EIS in the same way as other vehicle emissions.

With respect to health impacts, the "Interim Guidance on Air Toxics in NEPA Documents" (FHWA, February 3, 2006) indicates that presently there is not adequate science to reliably include exposure modeling or risk assessment in the air quality analysis. The Interim Guidance explains that:

- Modeling tools to generate air pollution emissions cannot be properly used at the project level because they are based on certain assumptions with regard to trip length and amounts of congestion and were based on a limited number of tests of mostly older vehicles.
- Dispersion models that would indicate how much particulate matter and air toxics are in the air were developed to deal with carbon monoxide, which is relatively non-reactive, and their intent was to determine maximum, not more typical levels. Further, little is known about background pollution levels in many areas.
- Even if emission levels and concentrations could be estimated, exposure assessment and risk analysis have their own shortcomings, due to extrapolation to annual levels, for example, let alone multiple years.

The conclusion of these analyses is that the project has been found to conform to the Clean Air Act. The turnover in the vehicle fleet to newer vehicles using cleaner fuels means air quality will improve. MDOT will work to minimize air pollution during construction and the railroads are committed to reducing emissions in yard operations. See the Green Sheet at the end of Section 5.

4.8.7.1 Recent EPA Actions and NAAQS Pollutant Trends

This information has not changed from the DEIS, except for updated monitor data related to particulates, which is presented subsequently in the particulate hot-spot analyses.

4.8.7.2 No Action and Preferred Alternative Pollutant Burdens

To maintain consistency with the analysis performed for the DEIS, comparisons are made here among the amount of pollution produced on the roadway system around the Livernois-Junction Yard in 2004, in 2015 (midway through the DIFT construction period of 2010 to 2020), and in the project design year of 2030. Likewise, estimates are made for those years of the amount of air pollution produced within the Livernois-Junction Yard by intermodal operations. To allow for a reasonable comparison, data for the existing Delray and Triple Crown operations, though not yet part of the Livernois-Junction Yard, are treated as if they were. This approach is consistent with the requirements of 40 CFR 1502.22 and 1502.24.

4.8.7.2.1 Terminal Area Pollutant Burden Forecasts

For the DEIS, an area was defined that covered the existing yard and any area of potential terminal expansion (Figure 4-40). Within these areas, the total pollution emitted was calculated in tons per year for 2004, 2015, and 2025 for each alternative. For this FEIS, data are provided only for build and no-build conditions for 2004, 2015 and 2030 at the Livernois-Junction Yard. The pollution burden analysis addresses:

- Visitor and employee traffic on the rail yard.
- Truck activity on the rail yard related to container delivery and pickup.
- Container handling on the yard - moving containers between delivery points and trains.
- Locomotive idling and movement on the yard.
- Fugitive dust from paved and unpaved yard areas.
- Vehicular travel on sites of businesses to be acquired.
- Vehicular travel on streets that would be inside the terminal with project development – John Kronk and a section of Lonyo.
- Fugitive dust from business sites and the public streets that would be closed by virtue of the proposed expansion.

The terminal burden forecasts of the Preferred Alternative are presented in Table 4-26a for 2015 and 2030. Existing (2004) and 2015 and 2030 No Action data are shown for comparison. Forecasts for the Preferred Alternative show higher values for NOx and VOCs than No Action due to increased intermodal activity. Particulate matter is substantially reduced as the Preferred Alternative paves the Livernois-Junction Yard.

Increased intermodal activity will shift freight from trucks to rail. This would reduce mileage and pollution. The expected reduction for Wayne County and the seven-county SEMCOG region is presented in Table 4-26b. These reductions exceed the NOx and VOC higher values noted in the above paragraph.

Table 4-26a
Detroit Intermodal Freight Terminal Study
FEIS Terminal Burdens – Annual Tons

	CO	NOx	PM_{10}	$PM_{2.5}$[a]	VOCs
2004					
SW Detroit/E Dearborn	41.3	93.9	177.3	43.5	7.1
2015 No Action					
SW Detroit/E Dearborn[b]	29.6	46.0	155.0	26.0	3.9
2015 Preferred Alternative					
SW Detroit/E Dearborn[b]	10.8	33.6	50.9	8.8	4.8
2030 No Action					
SW Detroit/E Dearborn[b]	17.1	16.7	245.0	30.9	3.6
2030 Preferred Alternative					
SW Detroit/E Dearborn[b]	13.7	29.1	92.0	14.9	6.6

[a] EPA detected an error in its MOBILE6.2 emission factor computer program. That factor has been corrected for this table in this FEIS. Note: VOCs are volatile organic compounds.
[b] Includes the lift activity now dispersed among the Livernois-Junction Yard, Delray and Triple Crown terminals.

Source: The Corradino Group of Michigan, Inc.

Table 4-26b
Detroit Intermodal Freight Terminal Study
Reduction of Pollutants Due to Truck-to-Rail Diversion for Each Action Alternative

	CO	NOx	PM_{10}	$PM_{2.5}$	VOCs
In Wayne Co.					
Totals	**17.8**	**33.8**	**3.0**	**1.7**	**15.9**
In Southeast Michigan					
Totals	**48.7**	**128.9**	**11.8**	**6.7**	**37.2**

Source: The Corradino Group of Michigan, Inc.

4.8.7.2.2 Public Roadway Pollutant Burden Forecasts

A network of local roads near each terminal that could be influenced by the project was identified for the DEIS and now the FEIS (Figure 4-48). These are roads that would: 1) be used by new DIFT traffic; 2) have traffic changes due to the closure of Lonyo; 3) experience changes in auto and truck traffic as businesses are relocated to accommodate terminal development; or, 4) experience changes in truck traffic due to gate changes.

The traffic changes resulting from the Preferred Alternative are summarized as follows:

- On Livernois: 1) the existing gate to the Livernois-Junction Yard will be retained, but will be constructed so trucks cannot enter from or leave to Livernois south of the terminal; 2) the existing gate of Dix/Waterman will be closed; and 3) a new gate will be fed via Kronk from Livernois (see Figure 3-19).
- The balance of Kronk will be removed and a perimeter road will be put in its place designed to discourage truck traffic.
- Two new gates will be built to serve the terminal from Wyoming.
- Lonyo will be closed through the terminal and Central Avenue will be grade-separated, passing under the terminal and carrying the Lonyo traffic, as well.

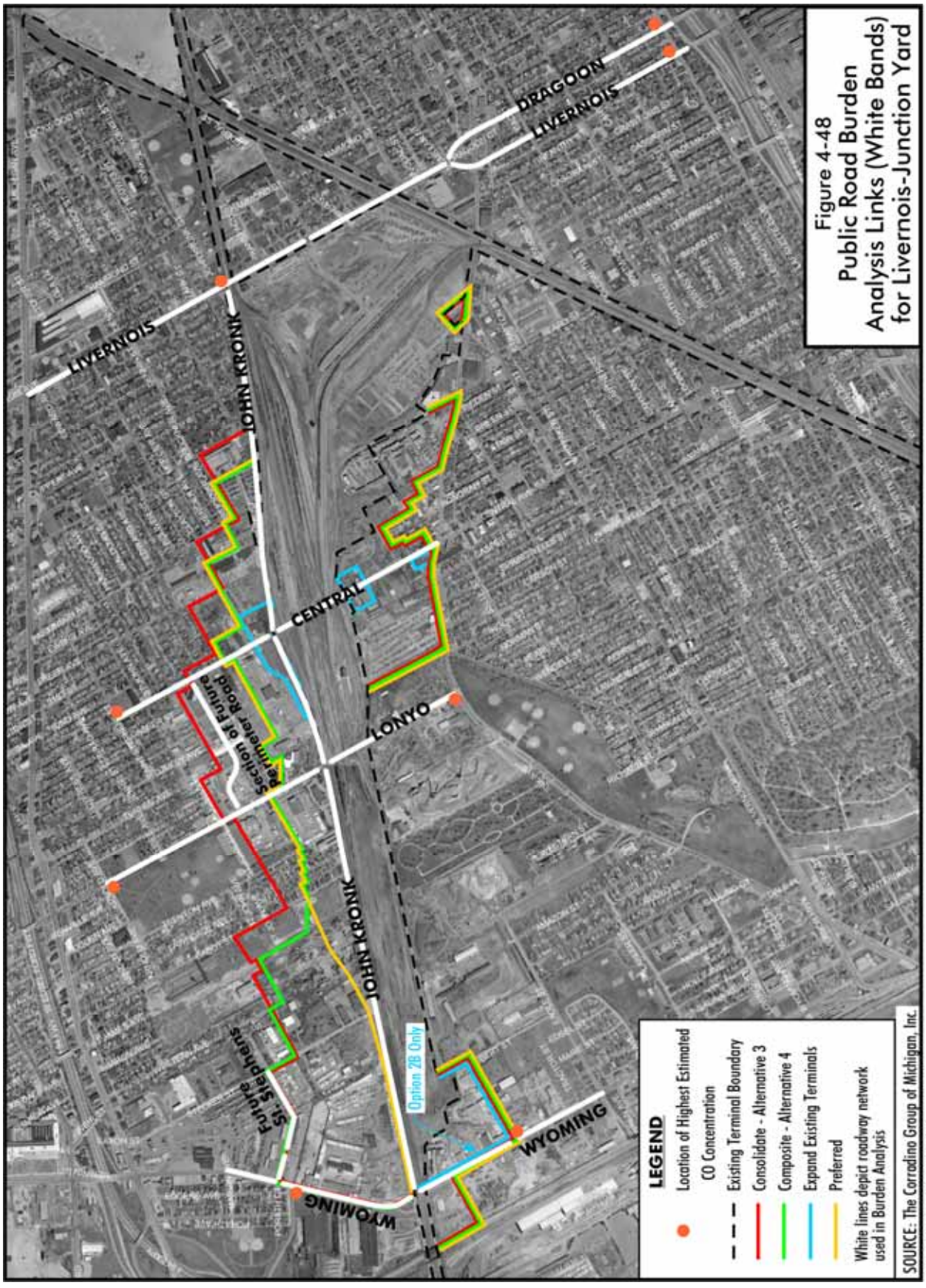


Figure 4-48
Public Road Burden
Analysis Links (White Bands)
for Livernois-Junction Yard
DRAGOON
LIVERNOIS
LIVERNOIS
JOHN KRONK
CENTRAL
LONYO
Perimeter Road
Future Service Road
JOHN KRONK
Future phase
St. Stephens
Option 2B Only
WYOMING
WYOMING
LEGEND
Location of Highest Estimated CO Concentration
Existing Terminal Boundary
Consolidate - Alternative 3
Composite - Alternative 4
Expand Existing Terminals
Preferred
White lines depict roadway network used in Burden Analysis
SOURCE: The Corradino Group of Michigan, Inc.

Traffic shifts were calculated, with new intermodal truck traffic added, and traffic from displaced businesses removed. The vehicle miles of travel were calculated by link, using traffic volumes and link lengths, and, using estimated speeds, the pollutant burden for each link was calculated.

Table 4-27 shows the results for autos and trucks. The auto component of local road traffic produced the majority of the pollution, due to the much greater number of cars than trucks on the roadway system, particularly CO and VOCs. Trucks produce far more NOx per vehicle. Nonetheless, even for NOx and particulates, in 2030, no more than 20 percent of the auto plus truck total is produced on the public road network by trucks.

It is noted that the methodologies in the MOBILE model limit the value of these results in terms of absolute numbers, but the data do provide a means of comparing links under build and no-build scenarios. Auto plus truck burden totals are lower with the Preferred Alternative than the no action condition in both 2015 and 2030.

Table 4-27
Detroit Intermodal Freight Terminal Study
FEIS Public Roadway Pollutant Burden
Livernois-Junction Yard[a]

	Auto						Truck						Auto Plus Truck				
	Tons Per Year						Tons Per Year						Tons Per Year				
	CO	NOx	PM_{10}	$PM_{2.5}$	VOC		CO	NOx	PM_{10}	$PM_{2.5}$	VOC		CO	NOx	PM_{10}	$PM_{2.5}$	VOC
2004	607.1	33.9	0.88	0.43	40.2		9.1	35.5	1.28	1.10	1.96		616.2	69.5	2.16	1.53	42.1
2015 No Action	367.7	12.7	0.75	0.42	15.3		2.7	9.6	0.40	0.25	1.16		370.4	22.3	1.15	0.68	16.4
2015 Preferred	358.7	12.4	0.73	0.41	14.9		2.2	8.3	0.35	0.22	0.98		360.9	20.7	1.08	0.63	15.9
2030 No Action	333.1	8.6	1.00	0.46	10.9		0.9	2.0	0.22	0.11	1.03		334.1	10.6	1.23	0.57	12.0
2030 Preferred	326.7	8.4	0.98	0.45	10.6		0.9	2.0	0.23	0.11	1.00		327.6	10.4	1.21	0.56	11.6

[a] The values in this table do not include CP/Expressway as that operation closed in June 2004.
Source: The Corradino Group of Michigan, Inc.

The Preferred Alternative would direct DIFT truck traffic to two gates accessed from Wyoming Avenue and two from Livernois Avenue. (See Table 4-28 for truck traffic on links near the Livernois-Junction Yard with and without the project.) Access to the Wyoming gates is expected to be predominantly from I-94 and access to the Livernois gate is expected to be almost exclusively from I-94. This pattern moves the roadway air quality pollutant burden away from residential areas (Table 4-29). Combined with the lower emission factors in the future, the pollutant burdens on roadway links near the Livernois-Junction Yard will go down in the future (2015 and 2030) from base year (2004) levels and will generally be slightly less than No Action Alternative values (Table 4-29).

The number of trucks on Wyoming south towards Dix will increase with the Preferred Alternative in 2015 relative to the No Action Alternative by 146 vehicles (see Table 4-28). This is a concern due to the presence near Wyoming Avenue of an air quality monitoring site. However, with the background cars and trucks, the annual $PM_{2.5}$ value for 2015 for build and no build alternatives is the same, 0.06 tons per year (see Table 4-29) and half the 2004 value of 0.13 tons per year.

Table 4-28
Detroit Intermodal Freight Terminal Study
Truck Volumes – Preferred Alternative and No Action[a]

			2004	2015		2030		Build minus No Action	
	Road Segment			No Action	Pref	No Action	Pref	2015	2030
Liv-Junc Yard	From	To							
Wyoming	Dix	New Gate	1350	1499	1644	1634	2016	146	382
	New Gate	Kronk	1534	1703	2586	1856	3684	883	1828
	Kronk	I-94 Ramp	1360	1510	2128	1646	3209	619	1564
	I-94 Ramp	Michigan	1304	1447	2066	1578	3141	619	1564
Lonyo	Michigan	Kronk	780	866	862	944	940	-4	-4
	Kronk	Dix	696	773	0	842	0	-773	-842
Central	Michigan	Kronk	1024	1137	895	1239	998	-241	-241
	Kronk	Dix	955	1060	970	1156	1066	-90	-90
Perimeter Rd	Lonyo	Central	0	0	431	0	470	431	470
Livernois	Michigan	Exist. Gate	2275	2548	2552	2801	3433	4	633
	Exist. Gate	Dix	2420	2740	1749	3041	1927	-992	-1114
	Dix	I-75	1081	1226	618	1364	694	-609	-670
Dragoon	Dix	I-75	968	1101	492	1227	557	-609	-670
Kronk	Wyoming	Lonyo	300	333	0	363	0	-333	-363
	Lonyo	Central	239	265	0	289	0	-265	-289
	Central	Livernois	238	264	301	288	580	37	292

[a] To project Preferred Alternative traffic to 2030, background traffic was grown at 1% a year until 2025 then 0% a year to 2030. Intermodal traffic was based on lifts growth.
Source: The Corradino Group of Michigan, Inc.

Table 4-29
Detroit Intermodal Freight Terminal Study
FEIS Public Roadway Pollutant Burden by Link
NAAQS Pollutants
(Auto plus Truck in annual tons)

			Carbon Monoxide					NOx					PM10					PM2.5					VOC				
			2004	2015		2030		2004	2015		2030		2004	2015		2030		2004	2015		2030		2004	2015		2030	
				No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref
Livernois Junction	From	To																									
Wyoming	Dix	New Gate	57.0	34.2	33.9	29.6	29.4	5.83	1.89	1.95	0.91	0.95	0.18	0.10	0.10	0.11	0.11	0.13	0.06	0.06	0.051	0.053	3.70	1.43	1.43	1.06	1.07
	New Gate	Kronk	38.9	23.3	23.2	20.2	19.9	3.97	1.29	1.54	0.62	0.72	0.12	0.07	0.08	0.08	0.09	0.09	0.04	0.05	0.035	0.040	2.52	0.98	1.00	0.72	0.76
	Kronk	I-94 Ramp	34.5	20.6	20.3	17.9	17.6	3.52	1.14	1.31	0.55	0.63	0.11	0.06	0.07	0.07	0.08	0.08	0.04	0.04	0.031	0.035	2.24	0.86	0.87	0.64	0.67
	I-94 Ramp	Michigan	33.1	19.8	19.5	17.2	16.9	3.38	1.09	1.26	0.53	0.61	0.11	0.06	0.07	0.06	0.07	0.07	0.03	0.04	0.030	0.034	2.14	0.83	0.83	0.62	0.65
Lonyo	Michigan	Kronk	53.1	32.1	25.7	30.8	24.6	5.72	1.84	1.62	0.94	0.78	0.17	0.09	0.08	0.10	0.09	0.12	0.05	0.05	0.047	0.039	3.78	1.48	1.20	1.03	0.84
	Kronk	Dix	23.7	14.3	0.0	13.7	0.0	2.55	0.82	0.00	0.42	0.00	0.08	0.04	0.00	0.05	0.00	0.05	0.02	0.00	0.02	0.00	1.69	0.66	0.00	0.46	0.00
Central	Michigan	Kronk	61.0	36.8	41.8	35.4	40.3	6.57	2.12	2.12	1.08	1.17	0.20	0.11	0.11	0.12	0.13	0.14	0.06	0.06	0.05	0.06	4.35	1.69	1.89	1.19	1.32
	Kronk	Dix	32.5	19.6	33.7	18.9	32.5	3.50	1.13	1.59	0.57	0.91	0.10	0.06	0.08	0.06	0.10	0.07	0.03	0.05	0.03	0.05	2.32	0.90	1.51	0.63	1.05
Perimeter Rd	Lonyo	Central	0.0	0.0	16.0	0.0	15.4	0.00	0.00	0.78	0.00	0.44	0.00	0.00	0.04	0.00	0.05	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.72	0.00	0.50
Livernois	Michigan	Exist. Gate	88.4	52.9	52.2	45.8	45.3	10.33	3.28	3.26	1.49	1.55	0.33	0.17	0.17	0.18	0.19	0.24	0.10	0.10	0.08	0.09	5.78	2.25	2.22	1.68	1.69
	Exist. Gate	Dix	89.9	54.0	53.4	46.8	46.4	10.97	3.51	2.90	1.58	1.44	0.35	0.18	0.15	0.19	0.17	0.25	0.11	0.09	0.09	0.08	6.21	2.45	2.36	1.83	1.76
	Dix	I-75	30.7	18.5	17.9	17.7	17.3	4.53	1.41	1.01	0.61	0.52	0.14	0.07	0.05	0.07	0.06	0.11	0.04	0.03	0.03	0.03	2.24	0.89	0.82	0.63	0.58
Dragoon	Dix	I-75	33.3	20.0	19.5	19.2	18.8	4.39	1.39	0.99	0.64	0.55	0.14	0.07	0.05	0.07	0.06	0.10	0.04	0.03	0.03	0.03	2.41	0.95	0.88	0.67	0.62
Kronk	Wyoming	Lonyo	20.2	12.1	0.0	10.5	0.0	2.11	0.69	0.00	0.33	0.00	0.07	0.04	0.00	0.04	0.00	0.05	0.02	0.00	0.02	0.00	1.38	0.54	0.00	0.40	0.00
	Lonyo	Central	6.0	3.6	0.0	3.1	0.0	0.63	0.20	0.00	0.10	0.00	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.41	0.16	0.00	0.12	0.00
	Central	Livernois	14.0	8.5	3.8	7.3	3.3	1.47	0.48	0.34	0.23	0.16	0.05	0.03	0.02	0.03	0.02	0.03	0.01	0.01	0.01	0.01	0.96	0.37	0.18	0.28	0.16
Totals			616.2	370.4	360.9	334.1	327.6	69.47	22.26	20.67	10.61	10.43	2.16	1.15	1.08	1.23	1.21	1.53	0.68	0.63	0.57	0.56	42.12	16.44	15.90	11.97	11.65

Source: The Corradino Group of Michigan, Inc.

Preferred Alternative – Summary of Terminal and Roadway Burden

At the Livernois-Junction Yard, the Preferred Alternative would reduce the levels of NAAQS pollutants relative to No Action conditions in 2015 for all but VOC, which would be almost unchanged (Table 4-30). This is true in spite of including the CN/Oak intermodal operation at the Livernois-Junction Yard. In 2030, pollutants would remain lower than the No Action Alternative with the Preferred Alternative except for NOx and VOC. In those cases, the increases for the No Action Alternative would be more than offset at the Wayne County and regional levels. Particulate matter would be substantially reduced.

Table 4-30
Detroit Intermodal Freight Terminal Study
Summary of Pollutant Burden Analysis – NAAQS
Livernois-Junction Terminal

Terminal Burden	Carbon Monoxide	NOx	PM_{10}	$PM_{2.5}$	VOC
2004	41.3	93.9	177.3	43.5	7.1
2015 NA	29.6	46.0	155.0	26.0	3.9
2015 Pref	10.8	33.6	50.9	8.8	4.8
2030 NA	17.1	16.7	245.0	30.9	3.6
2030 Pref	13.7	29.1	92.0	14.9	6.6
Roads					
2004	616.2	69.5	2.2	1.5	42.1
2015 NA	370.4	22.3	1.2	0.7	16.4
2015 Pref	360.9	20.7	1.1	0.6	15.9
2030 NA	334.1	10.6	1.2	0.6	12.0
2030 Pref	327.6	10.4	1.2	0.6	11.6
Totals					
2004	657.5	163.4	179.5	45.0	49.2
2015 NA	400.0	68.3	156.2	26.7	20.3
2015 Pref	371.7	54.3	52.0	9.4	20.7
2030 NA	351.2	27.3	246.2	31.5	15.6
2030 Pref	341.3	39.5	93.2	15.5	18.2
Regional Reductions					
2025 Wayne Co.	17.8	33.8	3.0	1.7	15.9
2025 SE Michigan	48.7	128.9	11.8	6.7	37.2

Source: The Corradino Group of Michigan, Inc.

4.8.7.3 Mobile Source Air Toxics (MSATS) – Quantitative Analysis

This mobile source air toxic (MSAT) analysis is based on the *Interim Guidance on Air Toxics in NEPA Documents* (FHWA, February 3, 2006). MSAT was neither required, nor done for the DEIS.

4.8.7.3.1 Guidance and Trends

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA regulates air toxics. Most originate from human-produced sources, including use of on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories and refineries).

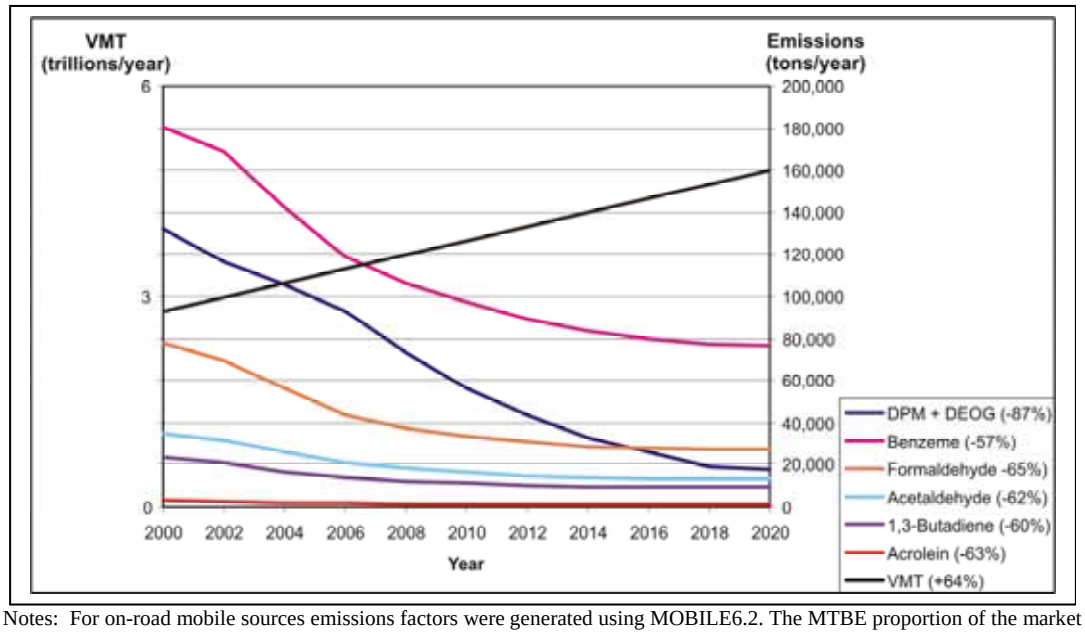
Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels, as secondary combustion products, and from brake and tire wear. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

EPA is the lead federal agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The Agency issued a Final Rule on *Controlling Emissions of Hazardous Air Pollutants from Mobile Sources* (66 FR 17229, March 29, 2001) under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly-promulgated mobile source control programs, including its: 1) reformulated gasoline (RFG) program; 2) national low-emission vehicle (NLEV) standards; 3) Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements; and, 4) proposed heavy-duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT (national average), these programs will result in reductions of on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde ranging from 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in Figure 4-49. (It is noted that in this time frame VMT growth in the SEMCOG region will be substantially less, so MSATs reductions in the region will be even greater than this national example.)

In February 2007, EPA finalized a rule to reduce hazardous air pollutants from mobile sources (*Control of Hazardous Air Pollutants from Mobile Sources*, February 9, 2007). The rule will limit the benzene content of gasoline and reduce toxic emissions from passenger vehicles and portable gas cans. EPA estimates that in 2030 this rule would reduce total emissions of mobile source air toxics by 330,000 tons and VOC emissions (precursors to ozone and $PM_{2.5}$) by over 1 million tons.

As a result of the analysis performed, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to control MSATs. The agency is preparing another rule under authority of the Clean Air Act, Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Figure 4-49
Detroit Intermodal Freight Terminal Study
U.S. Annual Vehicle Miles Traveled (VMT) vs. MSAT Emissions
2000-2020



Notes: For on-road mobile sources emissions factors were generated using MOBILE6.2. The MTBE proportion of the market for oxygenates is held constant at 50%. Gasoline RVP and oxygenate content are held constant. VMT is drawn from "*Highway Statistics 2000*," Table VM-2 for 2000. Analysis assumes an annual national growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.
Source: FHWA

This DIFT analysis follows the *Interim Guidance on Air Toxic Analysis in NEPA Documents* (FHWA, February 3, 2006). It includes a basic analysis of the likely MSAT emission impacts. The DIFT project is being treated as a Tier 3 "Project with Higher Potential MSAT Effects" under that guidance because it will "create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location … ."

Available technical tools do not enable a prediction of the project-specific health impacts of the emission changes associated with the Preferred Alternative. Due to these limitations, the following discussion is included in accordance with Council of Environmental Quality (CEQ) regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete – Evaluating the environmental and health impacts from MSATs on a proposed project would involve several key elements including: 1) emissions modeling; 2) dispersion modeling, in order to estimate ambient concentrations resulting from the estimated emissions; 3) exposure modeling, in order to estimate human exposure to the estimated concentrations; and, then, 4) final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevent a more complete determination of the MSAT health impacts of this project.

- **Emissions**. The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining these emissions in the context of highway projects. While MOBILE6.2 is used to predict emissions at a regional level, it has

limited applicability at the project level. MOBILE6.2 is a trip-based model with emission factor projections based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE6.2, for both particulate matter and MSATs, are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE6.2 to estimate MSAT emissions. So, while MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses among alternatives for very large projects, it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

- **Dispersion**. The tools to predict how MSATs disperse are also limited. EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area in order to assess potential health risk. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also focuses on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. But, the products are not available for use here.

- **Exposure Levels and Health Effects**. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would

need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs – Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. EPA's Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. IRIS is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken verbatim from the IRIS "Weight-of-Evidence Characterization" summaries and represents FHWA's most-current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.

- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.

- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.

- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.

- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.

- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.

- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community – Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow the reasonable prediction of relative emissions changes among alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives, and MSAT concentrations or exposures created by each of the project alternatives, cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

A quantitative analysis of MSAT emissions relative to the various alternatives is presented in Section 4.8.3.3 of this report. It acknowledges that the build alternatives may shift exposure to MSAT emissions in certain locations, but the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

4.8.7.3.2 Other Studies

Some recent studies have addressed MSAT health impacts in proximity to roadways. For example, the Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot-spots, the health implications of the entire mix of mobile source pollutants, and other topics. But, the final summary of the series is not expected for several years.

Other studies have reported that proximity to roadways is related to adverse health outcomes – particularly respiratory problems.[35] Much of this research is not specific to MSATs, instead surveying the full spectrum of both NAAQS and other pollutants. FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable FHWA to perform a more comprehensive evaluation of the health impacts specific to this project.

The Michigan Department of Environmental Quality, Air Quality Division (AQD), undertook to develop an air toxics monitoring strategy in 1992[36] and EPA established national monitoring programs. Detroit is one of several cities where air toxics are being monitored on an ongoing basis. The following are summaries of two recent and ongoing studies that have been conducted to evaluate particulates and air toxics in the Detroit area. They are drawn from MDEQ's *2006 Air Quality Report*.

> **DATI:** The Detroit Air Toxics Initiative (DATI) was initiated by MDEQ's Air Quality Division (AQD), and funded by a grant from EPA's Fiscal Year 2003 Community Assistance and Risk Reduction Initiative. The DATI project was a risk assessment and risk reduction project based on the Detroit Air Toxics Pilot Project's air toxics monitoring data from April 2001 through April 2002. A total of 224 air toxics were monitored at

[35] South Coast Air Quality Management District, *Multiple Air Toxic Exposure Study-II.* 2000; The Sierra Club, *Highway Health Hazards*, 2004 summarizing 24 Studies on the relationship between health and air quality); Environmental Law Institute, *NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles*, 35 ELR 10273. 2005, with health studies cited therein.

[36] MDEQ, Air Quality Division, *The Development of an Air Toxics Monitoring Strategy for Michigan*, June 1992.

seven sites in the Detroit area: Allen Park, Dearborn, W. Jefferson Avenue, W. Fort Street, Southfield, River Rouge, and northeast Detroit (E. Seven Mile).

The AQD finalized in 2005 the *DATI Risk Assessment Report*, along with a Technical Summary and Public Summary of that report.[37] The AQD is continuing to monitor air toxics in the Detroit area in response to the DATI findings. This monitoring will determine whether the levels of air toxics have changed since the DATI monitoring in 2001 and 2002 or remain at levels of concern. Updated information may be available in 2008 as data currently being collected are synthesized. Meanwhile, the Risk Reduction Phase efforts continue, including the retrofit of a locomotive in Southwest Detroit (see SEMCOG Weight of Evidence in Section 4.8.4).

DEARS: In 2004, the AQD and EPA's National Exposure Research Laboratory and National Health and Environmental Effects Research Laboratory began conducting the Detroit Exposure Aerosol Research Study (DEARS). DEARS is a three-year field monitoring effort that is designed to measure exposure and describe exposure relationships for air toxics, PM components, PM from specific sources, and criteria pollutants in Detroit. The study includes monitors at the Allen Park site, indoor/outdoor monitors at participant's houses, and personal exposure monitors.[38] Among the DEARS objectives are to:

- Determine the associations between concentrations measured at central site monitors and outdoor residential and indoor residential and personal exposures.
- Identify the human activity factors that influence personal exposures to selected pollutants.
- Investigate and apply source apportionment models to evaluate the contribution of specific ambient sources to residential concentrations and personal exposure to PM constituents and air toxics.
- Determine the associations between ambient concentrations of criteria gases (O_3, NO_2, and SO_2) and personal exposures for these gases.

4.8.7.3.3 Quantitative MSAT Analysis – Preferred Alternative

The quantitative analysis presented here provides a means of comparing the Preferred Alternative to taking no action, consistent with the guidance cited above. Terminal activity considered: visitor and employee traffic; container truck activity; container handling on the yard; locomotive activity; fugitive dust; loss of traffic and dust generation by businesses displaced by the projects and, closure of public streets that will fall within the future terminal. For the roadway analysis, the number of vehicles was used in conjunction with road link lengths and speeds.

MSAT terminal data are shown in Table 4-31. The emission factor sources are as listed earlier. The overall conclusion is that for the terminal area, diesel particulate matter (DPM) will drop substantially from current levels with the Preferred Alternative. But, increased terminal activity will increase the levels of butadiene, formaldehyde, acetaldehyde, and acrolein compared to today's levels and compared to taking no action. These increases would be more than offset by reductions in Wayne County (Table 4-31 bottom) with the mode shift from truck to rail.

[37] The DATI reports are available on the MDEQ Air Quality Division's website at http://www.michigan.gov/deqair.
[38] DEARS information is available at http://www.epa.gov/dears/.

Table 4-31
Detroit Intermodal Freight Terminal Study
Summary of Pollutant Burden Analysis – MSATs
Livernois-Junction Terminal

Terminal Burden	BENZ	BUTA	FORM	ACET	ACRO	DPM
2004	0.13	0.02	0.63	0.29	0.04	6.30
2015 No Action	0.70	0.02	0.42	0.19	0.03	2.50
2015 Preferred	0.08	0.02	0.58	0.27	0.04	0.80
2030 No Action	0.06	0.01	0.39	0.18	0.03	0.40
2030 Preferred	0.11	0.02	0.84	0.40	0.06	0.70
Roads						
2004	1.47	0.15	0.47	0.21	0.02	1.53
2015 No Action	0.60	0.06	0.21	0.09	0.01	0.68
2015 Preferred	0.58	0.06	0.19	0.08	0.01	0.63
2030 No Action	0.45	0.04	0.17	0.07	0.01	0.57
2030 Preferred	0.44	0.04	0.16	0.07	0.01	0.56
Totals						
2004	1.60	0.17	1.10	0.50	0.06	7.83
2015 No Action	1.30	0.08	0.63	0.28	0.04	3.18
2015 Preferred	0.66	0.08	0.77	0.35	0.05	1.43
2030 No Action	0.51	0.05	0.56	0.25	0.04	0.97
2030 Preferred	0.55	0.07	1.00	0.47	0.07	1.26
Regional Reductions						
2025 Wayne Co.	0.17	0.1	1.3	0.48	0.06	1.7
2025 SE Michigan	0.41	0.24	3.05	1.12	0.14	6.7

Source: The Corradino Group of Michigan, Inc.

The roadway network under consideration is shown in Figure 4-48. The changes in truck traffic expected with the Preferred Alternative are shown in Table 4-28. MSAT summary roadway burdens are shown in Table 4-31. The Preferred Alternative will reduce the pollutant burden on the local road network analyzed, in 2015 and in 2030 compared to the No Action Alternative and 2004. The most important reductions would occur on Livernois and Dragoon south of Dix to I-75 where homes are 30 feet from the roads (Table 4-32). MSAT burdens in 2030 with the Preferred Alternative would be in the range of one-third of base year (2004) amounts.

The sum of the terminal and roadway burdens indicates the Preferred Alternative will increase MSATs relative to taking no action in 2030, although, except for acrolein, the amounts would be less than 2004 levels. Regionally, the project will reduce MSATs.

Table 4-32
Detroit Intermodal Freight Terminal Study
FEIS Public Roadway Pollutant Burden by Link
Mobile Source Air Toxics
(Auto Plus Truck in Annual Tons)

			Diesel Part. Matter					Benzene					Butadiene					Formaldehyde					Acetaldehyde					Acrolein				
			2004	2015		2030		2004	2015		2030		2004	2015		2030		2004	2015		2030		2004	2015		2030		2004	2015		2030	
				No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref		No Act.	Pref	No Act.	Pref
Livernois Junction	From	To																													
Wyoming	Dix	New Gate	0.13	0.06	0.06	0.05	0.05	0.131	0.053	0.053	0.039	0.038	0.0132	0.0051	0.0051	0.0037	0.0038	0.0351	0.0165	0.0142	0.0110	0.0117	0.0173	0.0071	0.0073	0.0060	0.0064	0.0020	0.0008	0.0009	0.0006	0.0007
	New Gate	Kronk	0.09	0.04	0.05	0.03	0.04	0.090	0.036	0.036	0.026	0.026	0.0090	0.0035	0.0036	0.0025	0.0028	0.0270	0.0112	0.0135	0.0090	0.0128	0.0118	0.0049	0.0057	0.0041	0.0055	0.0013	0.0006	0.0007	0.0004	0.0006
	Kronk	I-94 Ramp	0.08	0.04	0.04	0.03	0.04	0.079	0.032	0.032	0.023	0.023	0.0080	0.0031	0.0031	0.0022	0.0025	0.0239	0.0099	0.0115	0.0080	0.0112	0.0104	0.0043	0.0049	0.0036	0.0048	0.0012	0.0005	0.0006	0.0004	0.0005
	I-94 Ramp	Michigan	0.07	0.03	0.04	0.03	0.03	0.076	0.031	0.030	0.022	0.022	0.0076	0.0029	0.0030	0.0021	0.0024	0.0229	0.0095	0.0110	0.0077	0.0109	0.0100	0.0041	0.0047	0.0035	0.0046	0.0011	0.0005	0.0006	0.0004	0.0005
Lonyo	Michigan	Kronk	0.12	0.05	0.05	0.05	0.04	0.131	0.053	0.043	0.041	0.033	0.0132	0.0052	0.0043	0.0038	0.0031	0.0416	0.0178	0.0158	0.0145	0.0130	0.0180	0.0076	0.0067	0.0064	0.0056	0.0021	0.0009	0.0008	0.0007	0.0006
	Kronk	Dix	0.05	0.02	0.00	0.02	0.00	0.059	0.024	0.000	0.018	0.000	0.0059	0.0023	0.0000	0.0017	0.0000	0.0186	0.0080	0.0000	0.0065	0.0000	0.0080	0.0034	0.0000	0.0029	0.0000	0.0009	0.0004	0.0000	0.0003	0.0000
Central	Michigan	Kronk	0.14	0.06	0.06	0.05	0.06	0.151	0.061	0.069	0.048	0.054	0.0152	0.0059	0.0065	0.0043	0.0047	0.0478	0.0205	0.0201	0.0167	0.0163	0.0207	0.0088	0.0088	0.0074	0.0074	0.0024	0.0011	0.0011	0.0008	0.0008
	Kronk	Dix	0.07	0.03	0.05	0.03	0.05	0.080	0.033	0.056	0.025	0.043	0.0081	0.0032	0.0051	0.0023	0.0037	0.0255	0.0109	0.0148	0.0089	0.0118	0.0110	0.0047	0.0066	0.0039	0.0055	0.0013	0.0006	0.0008	0.0004	0.0006
Perimeter Rd	Lonyo	Central	0.00	0.00	0.02	0.00	0.02	0.000	0.000	0.026	0.000	0.021	0.0000	0.0000	0.0025	0.0000	0.0018	0.0000	0.0000	0.0074	0.0000	0.0059	0.0000	0.0000	0.0033	0.0000	0.0027	0.0000	0.0000	0.0004	0.0000	0.0003
Livernois	Michigan	Exist. Gate	0.24	0.10	0.10	0.08	0.09	0.204	0.083	0.082	0.060	0.060	0.0207	0.0081	0.0080	0.0059	0.0061	0.0664	0.0287	0.0285	0.0234	0.0260	0.0286	0.0122	0.0122	0.0103	0.0112	0.0033	0.0014	0.0014	0.0011	0.0012
	Exist. Gate	Dix	0.25	0.11	0.09	0.09	0.08	0.216	0.088	0.086	0.064	0.062	0.0222	0.0088	0.0083	0.0064	0.0059	0.0734	0.0325	0.0264	0.0271	0.0216	0.0315	0.0137	0.0115	0.0117	0.0096	0.0036	0.0017	0.0014	0.0013	0.0011
	Dix	I-75	0.11	0.04	0.03	0.03	0.03	0.076	0.031	0.030	0.024	0.023	0.0081	0.0033	0.0029	0.0024	0.0021	0.0301	0.0141	0.0098	0.0119	0.0081	0.0126	0.0058	0.0042	0.0050	0.0036	0.0015	0.0007	0.0005	0.0006	0.0004
Dragoon	Dix	I-75	0.10	0.04	0.03	0.03	0.03	0.082	0.034	0.032	0.026	0.025	0.0085	0.0034	0.0030	0.0025	0.0022	0.0301	0.0138	0.0094	0.0115	0.0077	0.0127	0.0057	0.0041	0.0049	0.0035	0.0015	0.0007	0.0005	0.0005	0.0004
Kronk	Wyoming	Lonyo	0.05	0.02	0.00	0.02	0.00	0.048	0.020	0.000	0.014	0.000	0.0049	0.0019	0.0000	0.0014	0.0000	0.0149	0.0063	0.0000	0.0051	0.0000	0.0065	0.0027	0.0000	0.0023	0.0000	0.0007	0.0003	0.0000	0.0003	0.0000
	Lonyo	Central	0.01	0.01	0.00	0.01	0.00	0.014	0.006	0.000	0.004	0.000	0.0015	0.0006	0.0000	0.0004	0.0000	0.0045	0.0019	0.0000	0.0015	0.0000	0.0019	0.0008	0.0000	0.0007	0.0000	0.0002	0.0001	0.0000	0.0001	0.0000
	Central	Livernois	0.03	0.01	0.01	0.01	0.01	0.034	0.014	0.006	0.010	0.005	0.0034	0.0013	0.0007	0.0010	0.0006	0.0104	0.0044	0.0032	0.0036	0.0041	0.0045	0.0019	0.0013	0.0016	0.0016	0.0005	0.0002	0.0002	0.0002	0.0002
Totals			**1.53**	**0.68**	**0.63**	**0.57**	**0.56**	**1.472**	**0.598**	**0.582**	**0.445**	**0.437**	**0.1493**	**0.0585**	**0.0561**	**0.0427**	**0.0417**	**0.4722**	**0.2059**	**0.1856**	**0.1664**	**0.1611**	**0.2055**	**0.0879**	**0.0811**	**0.0741**	**0.0721**	**0.0235**	**0.0106**	**0.0098**	**0.0081**	**0.0079**

Source: The Corradino Group of Michigan, Inc.

4.8.7.4 SEMCOG Attainment Status/Air Quality Conformity

This section updates the "attainment status" of the area with respect to National Ambient Air Quality Standard (NAAQS) pollutants since the DEIS was published. Then information is presented to demonstrate the Preferred Alternative "conforms" to the Clean Air Act, because it does not worsen air quality, cause new air quality violations, or delay the timely attainment of the NAAQS.

EPA has promulgated two sets of regulations to implement the conformity requirements of the Clean Air Act: 1) Transportation Conformity Regulations, which apply to highways and mass transit and establish the criteria and procedures for determining whether transportation plans, programs, and projects funded under title 23 U.S.C. or the Federal Transit Act conform with the State Implementation Plan (58 FR 62188); and, 2) General Conformity Regulations, which apply to other Federal projects. These two regulatory approaches are discussed below.

4.8.7.4.1 NAAQS and Regional Attainment Status

The Clean Air Act requires Michigan (and all other states) to have a *State Implementation Plan* (SIP) to demonstrate how it will attain and/or maintain NAAQS (Table 4-21). SEMCOG collaborates with the Air Quality Division of the Michigan Department of Environmental Quality (MDEQ) to prepare and/or update a SIP. SEMCOG is responsible for evaluating mobile source (vehicular) emissions in Southeast Michigan when projects are proposed for inclusion in its long-range transportation plan. SEMCOG's *2030 Regional Transportation Plan* (RTP) must undergo a quantitative analysis demonstrating that emissions levels associated with implementing planned transportation projects are equal to, or lower than designated emissions limits (budgets) set forth in the SIP. In doing so, SEMCOG is managing the transportation air quality conformity process in Southeast Michigan. The DIFT project is subject to air quality transportation conformity review through SEMCOG. This review has occurred and the DIFT Preferred Alternative has been found to conform.

"Hot-spot" analyses of carbon monoxide (CO) and particulate matter are also a part of project-level transportation conformity and are discussed below.

The following paragraphs report on the attainment status of the region, as updated since the DEIS.

Carbon monoxide – In 1999, parts of Wayne (including all of the city of Detroit), Oakland, and Macomb counties were redesignated from nonattainment to maintenance for CO. A positive conformity determination for CO requires that emissions in any future year remain at or below the approved mobile source emissions budget of 1946 tons/day. Progress in addressing CO has advanced to the point that, starting in 2007, under amended 2006 air quality monitoring regulations, CO monitoring is no longer required.

Eight-hour ozone – On April 15, 2004, the EPA officially designated the seven-county SEMCOG region, plus Lenawee County, a moderate nonattainment area for the 8-hour ozone standard. In September 2004, EPA approved the reclassification of the area from moderate to marginal ozone nonattainment. Since then, MDEQ and SEMCOG have implemented the control measures laid out in the region's *2005 Ozone Attainment Strategy*. These include a decrease in the allowable vapor pressure of summertime gasoline from 7.8 PSI (pounds per square inch) to 7.0 PSI, and a reduction in allowable VOC emissions from consumer and commercial products. Both of these measures went into effect in 2007. A formal SIP demonstrating how the region will attain the 8-hour

ozone standard was due in June 2007; however, it was delayed because it was anticipated the region would attain the standard by that date and be classified as a maintenance area. While the region was measuring attainment in June of 2007, a few high ozone readings in late August prevented the redesignation. By the end of the 2008 ozone season, Southeast Michigan was once again in compliance with the standard. Consequently, on March 2, 2009, MDEQ submitted to U.S. EPA a "Request to Redesignate to Attainment Status" for ozone, citing attainment level design values for ozone for 2006-2008. On June 18, 2009, the region was redesinated as in attainment with the ozone standard.

$PM_{2.5}$ – EPA designated seven counties in Southeast Michigan nonattainment for the annual $PM_{2.5}$ standard on December 15, 2004. A SIP for $PM_{2.5}$ for the 15 ppm $\mu g/m^3$ annual standard, which includes emission budgets for this pollutant, has been submitted to the U.S. EPA by MDEQ. That draft SIP is now under review. Until new budgets are approved, regional conformity for $PM_{2.5}$ is determined by ensuring that future annual emissions do not exceed 2002 levels (2,766 tons/year for $PM_{2.5}$ and 151,540 tons/year for NOx). The control strategy contained in the SIP is expected to bring Southeast Michigan into attainment of the annual $PM_{2.5}$ standard by 2010. The latest monitoring data show all but one of the region's 14 monitors are now meeting the standard.

4.8.7.4.2 General Conformity

General conformity normally applies to non-transportation projects. Threshold (*de minimus)* emission levels have been set for particulate pollution ($PM_{2.5}$ and PM_{10}) to determine when general conformity determinations are necessary (40 CFR 93.153(b)). Because the DIFT is a transportation project, it would be logical to assume that only transportation conformity applies. But, DIFT is unique in that it has a terminal. There, trucks will idle briefly as they pick up and drop off containers. Therefore, plaza activity has been examined to determine whether *de minimus* levels of 100 tons per year for $PM_{2.5}$ or PM_{10} are exceeded during system operations. The year of highest emissions, 2015, has been analyzed and compared to the *de minimus* thresholds.

Because of the scale of the DIFT project, the *de minimus* threshold was also applied to construction activities to determine whether PM_{10} dust levels exceed 100 tons in any construction year.

4.8.7.4.2.1 $PM_{2.5}$ and PM_{10} Operations *de minimus* Analysis

The *de minimus* level of 100 tons annually was published in the *Federal Register* of July 17, 2006, for both $PM_{2.5}$ and PM_{10}. The DIFT project implementation will actually reduce the annual $PM_{2.5}$ and PM_{10} burden at the Livernois-Junction Yard (the only terminal that receives government funding under the Preferred Alternative) in 2015 and 2030 compared to the No Action Alternative. So, the DIFT project operations will not trigger the need to conduct general conformity (see Table 4-26a and compare 2015 or 2030 Preferred Alternative values for $PM_{2.5}$ or PM_{10} to the matching values for the No Action Alternative).

4.8.7.4.2.2 PM_{10} Construction *de minimus* Analysis

An examination of the proposed DIFT construction program found that, in any given year, the dust created during project implementation will also be well within the PM_{10} *de minimus* level. The 300 existing acres, and 169 new acres, are predominantly clear of major buildings and structures. With a project implementation program of ten years, it is reasonable to assume about 125 acres would be the most to be worked on in a given year. Assumptions were a site development area 1100 feet wide and 5000 feet long and use of earthmovers and/or graders with a

PM_{10} dust emission factor of 3.6 lbs/vehicle mile of travel of the construction equipment. Using the methodologies available in EPA's "Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources," revised December 2003, and reasonable construction assumptions, maximum yearly estimates of dust from construction are under 30 tons, well under the 100 ton threshold.

4.8.7.4.3 Transportation Conformity

4.8.7.4.3.1 Regional Conformity

With identification of the Preferred Alternative, DIFT project elements that cause changes to the transportation network were evaluated by SEMCOG for air quality conformity. When analyzed together with other plan elements, the air pollution generated must not exceed "budgets" established in the SIP. This was the case for carbon monoxide, ozone, and $PM_{2.5}$. This analysis has been performed and the DIFT has been included in SEMCOG's cost-feasible RTP and Transportation Improvement Program (TIP). It can now advance to design.

4.8.7.4.3.2 Hot-spot Analysis

Hot-spot analysis is designed to evaluate whether there are air quality impacts on a smaller scale than an entire nonattainment or maintenance area. Conforming to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

The hot-spot analysis applies to carbon monoxide (CO), $PM_{2.5}$, and PM_{10} consistent with 40 CFR 93.116.

The CO analysis is done on a quantitative basis per 40 CFR 93.123(a) to determine whether estimated "with-project" concentrations of CO exceed the established one-hour and/or eight-hour standards. If they do not, the project conforms. Hot-spot conformity for $PM_{2.5}$ and PM_{10} is determined on a qualitative basis per 40 CFR 93.123(b)(4) until appropriate methods and modeling guidance are available for quantitative analysis.

Regarding PM_{10}, a portion of Detroit that includes the proposed new DIFT project is a maintenance area. In the Maintenance Plan, SEMCOG, MDEQ and EPA concluded that mobile source (vehicular) PM_{10} emissions are not a significant contributor to regional PM_{10} emissions, and SEMCOG is not required to consider PM_{10} in its regional conformity analyses. However, because no similar determination was made with respect to whether mobile source PM_{10} emissions contribute to localized hot-spot problems, a PM_{10} hot-spot qualitative analysis is required.

CO Hot-spot Quantitative Analysis

Guidance for CO hot-spot analysis (40 CFR §93.123(a)) states that, if there are no violations of the CO standards in the area affected by the project, then the project's future effect is compared to the standard because the test is whether the project causes an exceedance of the standard at a sensitive receptor. There are no violations in the area. Modeling performed for the DEIS indicated no project alternative would have resulted in CO values at hot-spots around the terminals anywhere near the one-hour and eight-hour standards (Table 4-25). The same is true for the Preferred Alternative, which will have a lower activity level than Alternative 3 would have had.

$PM_{2.5}$ Hot-spot Qualitative Analysis

Since the publication of the DEIS the air quality regulatory background for particulates has changed as a result of the publication of the "Final Rule for $PM_{2.5}$ and PM_{10} Hot-spot Analyses in Project-Level Transportation Conformity Determinations," which appeared in the March 10, 2006, *Federal Register*. Subsequent to the publication of the Final Rule, EPA and FHWA jointly issued "Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas," March 29, 2006. The DIFT project is of "air quality concern" (*Transportation Conformity Guidance*, Chapter 1.3) for $PM_{2.5}$ because it would represent a transfer point that has "a significant number of diesel vehicles congregating at a single location." (40 CFR 93.123(b)(1)(iii)).

Upon the publication of the guidance, interagency consultation occurred on May 11, 2006, among EPA, FHWA, SEMCOG, MDOT and MDEQ. EPA, FHWA, and MDOT met again July 19, 2006. Consultation led to an Addendum to the original *Air Quality Protocol*. Both the Protocol and the Addendum (Appendix E) guided the analysis in this section. Subsequent to these noted activities, interagency consultation continued on the Detroit River International Crossing (DRIC), a proposed new link to Canada also to be located in Southwest Detroit. The DIFT Project has independent utility from the DRIC. That further consultation led to refinements to the DIFT *Air Quality Protocol* and Addendum. The analysis that follows reflects the continued interagency consultation.

The qualitative $PM_{2.5}$ analysis covers:

- A description of the proposed project;
- The method chosen to conduct the analysis (Method B);
- The type of emissions to be considered ($PM_{2.5}$);
- Background No Action conditions – base 2004 and future (2015 and 2030);
- Project conditions – 2015 and 2030;
- Documentation of public involvement; and,
- Conclusions.

This qualitative hot-spot analysis addresses both the 24-hour and annual standards for $PM_{2.5}$. The SEMCOG area was designated non-attainment with the annual $PM_{2.5}$ standard of 15 μ/m^3 in 2004. The analysis herein addresses that standard and the concurrent 65 $\mu g/m^3$ 24-hour standard. It is anticipated that during 2009 the region will be designated in non-attainment with the stricter 35 μ/m^3 24-hour standard established in 2006. However, based on the rules that govern conformity, the region will have another year before conformity to the 35 μ/m^3 standard applies. Therefore, while 35 μ/m^3 is the 24-hour standard shown herein in tables and graphics, it is the 65 μ/m^3 standard that is still the test for conformity. The DIFT project will be implemented over a number of years. If there are future federal actions or major project changes, the U.S. Department of Transportation will comply with whatever conformity requirements apply at that time.

Project Description

The DIFT project is fully described in Section 3.5. It is in Southwest Detroit, which became an industrial area beginning in the 1850s as ores came to the riverfront via Great Lakes ships. Railroads eventually made this a year-round activity. Brick manufacture and production of soda glass added to ore processing in Southwest Detroit. Then came steel mills and the auto industry. Worker housing developed adjacent to the factories. Later the Marathon refinery, coal-generated electric power and sludge burning at the Detroit sewage treatment plant contributed to air quality burdens in the area.

An extensive public involvement program that covered air quality was conducted in this and other areas around intermodal terminals. It is described in Section 7 of this FEIS.

Method Chosen

This qualitative hot-spot analysis follows a hybrid of Methods A and B, as outlined in Chapter 4 of the March 2006 EPA/FHWA Joint Guidance. It relies on air quality studies and data from available sources as identified through the interagency consultation process; some elements are area-wide and general in nature, and others are local or site specific.

Background $PM_{2.5}$ No Action Conditions - Base (2004) and Future (2015 and RTP Horizon Year - 2030)

The sections below cover $PM_{2.5}$ trends, air quality monitoring of $PM_{2.5}$ in the area, SEMCOG's $PM_{2.5}$ attainment strategy projects conditions, construction, public involvement, and conclusion related to $PM_{2.5}$.

$PM_{2.5}$ Trends and Outlook

EPA notes in its *Particulate Pollution Report: Current Understanding of Air Quality and Emissions through 2003,* that regional pollution in the eastern U.S. contributes more than half of total $PM_{2.5}$ concentrations. Regional pollutions comes from power plants, natural sources, and urban pollution, and can be transported hundreds of miles. As a result, EPA has pursued a variety of programs aimed at point sources, as well as efforts to control mobile sources (Table 4-33).

Table 4-33
Detroit Intermodal Freight Terminal Study
Selection of Emission Control Rules and Programs Contributing to PM Emission Reductions 1995-2015

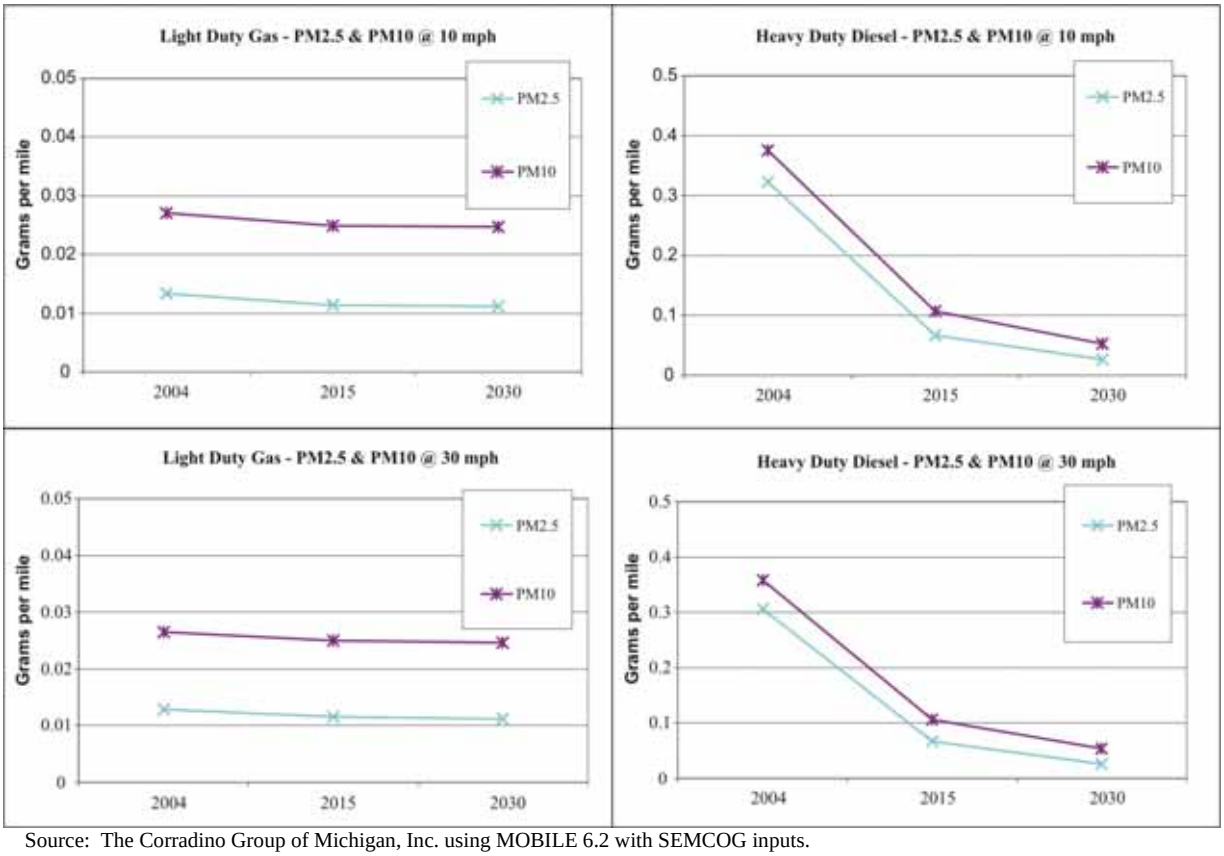
Program	Sector	Direct PM[a] Reductions	SO_2 Reductions	PM Precursors NOx Reductions	VOC Reductions	Implementation Date
Clean Air Nonroad Diesel Rule	Mobile sources	X	X	X		2004-2015
Clean Air Interstate Rule (proposed December 2003)	Electric Utilities	X	X	X		2010-2015
Acid Rain Program	Electric Utilities		X	X		1995-2010
Regional Haze Rule/Best Available Retrofit Technology	Electric Utilities[b]	X	X	X		2013-2015
$PM_{2.5}$ Implementation[c]	Stationary/Area/ Mobile sources	X	X	X	X	2008-2015
Maximum Achievable Control Technology (MACT) Standards[d]	Stationary/Area	X			X	1996-2003
Various Mobile Source Programs[e]	Mobile sources	X	X	X	X	Ongoing

[a] Includes elemental and organic carbon, metals, and other direct emissions of PM.
[b] Also applies to industrial boiler and the other source categories also covered under Prevention of Significant Deterioration (PSD).
[c] Includes Reasonably Available Control Technology (RACT) and Reasonably Available Control Measures (RACM).
[d] Includes a variety of source categories such as boilers and process heaters, pulp and paper, petroleum refineries, various minerals and ores, and others. While these standards are for hazardous air pollutants (HAPs) such as metals, measures to reduce HAPs in many cases also reduce PM emissions.
[e] Includes such programs as onroad diesel and gasoline engines, nonroad gasoline engines, Low Sulfur Diesel and Gasoline Fuel Limits for onroad and offroad engines, motorcycles, land-based recreational vehicles and marine diesel engines. EPA finalized rules related to locomotive and marine compression-ignition engines and locomotive idling in March 2008.

Source: Derived from EPA as presented in MDEQ's *2006 Annual Air Quality Report for Michigan.*

The EPA-approved MOBILE6.2 model emission factors show that mobile source emissions of particulate matter are expected to decline substantially (Figure 4-50), especially for trucks. The examples shown are for 10 and 30 miles per hour in 2004, 2015 and 2030.

Figure 4-50
Detroit Intermodal Freight Terminal Study
MOBILE6.2 Emission Factor Trends – $PM_{2.5}$ and PM_{10}



Source: The Corradino Group of Michigan, Inc. using MOBILE 6.2 with SEMCOG inputs.

In the Midwest, EPA is assisted in addressing air quality concerns by the Lake Michigan Air Directors Consortium (LADCO), which works with its member states in the upper Midwest to develop the necessary technical support for new State Implementation Plans (SIPs) for regional haze, $PM_{2.5}$, and 8-hour ozone. In Michigan, the Michigan Department of Environmental Quality (MDEQ) works to improve air quality, including the reduction of $PM_{2.5}$.

MDEQ's *2006 Air Quality Report* indicates that EPA 2002 data show area sources, such as farm fields and residential wood-burning, represent the largest share of $PM_{2.5}$ emissions (37%), while non-road vehicles, such as construction equipment, add another 32 percent. On-road (vehicular) sources contribute 18 percent and point sources represent 13 percent. EPA estimates the Clean Air Non-road Diesel Rule, signed July 7, 2005, will reduce the engine emissions of non-road vehicles by more than 90 percent.

MDEQ coordinates with EPA in its Speciation Trends Network (STN), which is designed to provide: 1) annual and seasonal spatial characterization of aerosols; 2) trends and tracking of control program progress; 3) integration of chemical speciation data with data related to the visual

environment; and, 4) development of emission control strategies. Several programs measure particulates in Michigan.

In a report entitled "Midwest Urban Organics Study: Lessons Learned,"[39] LADCO addressed some relationships between $PM_{2.5}$ and organic carbon mass (OM).[40] LADCO found the major sources of OM are: 1) mobile sources, including on-road and non-road, gasoline and diesel, and smoking (high-emitting) and non-smoking vehicles; 2) burning (both residential wood combustion and wildfires); 3) industrial sources; and, 4) secondary organic aerosols.

Near the DIFT study area, $PM_{2.5}$ speciation data are being collected at Monitor 26-163-0001 in Allen Park and 26-163-0033 in Dearborn. MDEQ finds that $PM_{2.5}$ from mobile sources can, to a degree, be differentiated from non-mobile sources, but that differentiating among mobile sources, such as trucks, is difficult.

Monitoring of $PM_{2.5}$

$PM_{2.5}$ is measured at:

- Wyoming Avenue (Station 26-163-0032 at 2842 Wyoming Avenue);
- Fort Street (Station 26-163-0015 at 6921 West Fort Street); and,
- West Lafayette (Station 26-163-0039 at 2000 West Lafayette).

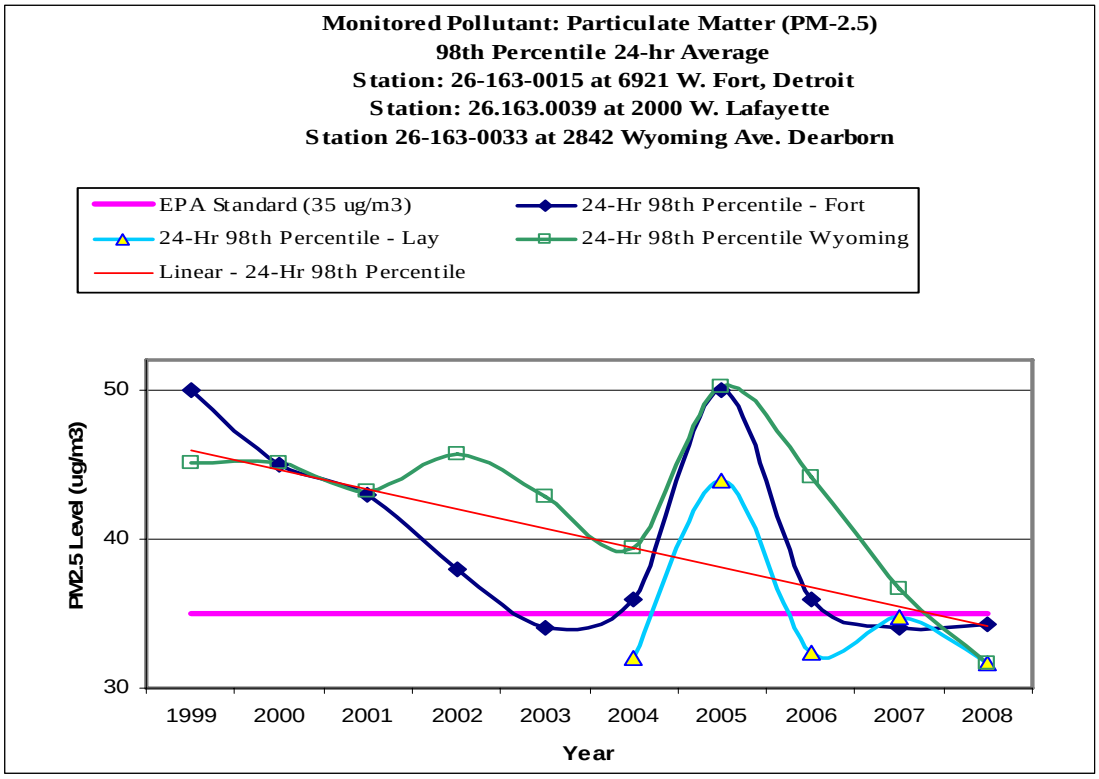
Certified 2008 $PM_{2.5}$ data have been submitted to U.S. EPA by MDEQ that show these three monitors in Southwest Detroit under the 15 μ/m^3 annual standard, at 13.33, 12.85, and 12.23 μ/m^3, respectively (Figure 4-51). Note the one μ = one millionth of a gram and m^3 = cubic meter.) Values at these locations were under even the new, stricter 24-hour 98^{th} Percentile standard of 35 μ/m^3 (31.7, 34.3, and 31.7 μ/m^3, respectively). This means these three monitors were well under the applicable 24-hour 98^{th} Percentile standard of 65 μ/m^3 which is the applicable 24-hour conformity test standard that will remain in effect until spring or summer 2010.

The wind rose in Figure 4-52 shows the prevailing winds are from the southwest indicating, for most of the year, the area of heavy industry south and west of the project area (Figure 4-53) is contributing directly to the measurements of particulates at Dearborn and, to a lesser extent, West Fort Street.

A comparison with other monitor data in Southeast Michigan points out how important industrial and point sources have been to the problem of $PM_{2.5}$, in Southwest Detroit. Figure 4-54 shows monitors near freeways (in red). The table accompanying the graphic shows 24-hour and annual mean values of $PM_{2.5}$, averaged over three years (the standards for $PM_{2.5}$ are in terms of a three-year rolling average).

[39] Sonoma Technology, Inc. and University of Wisconsin-Madison for Lake Michigan Air Directors Consortium, *Midwest Urban Organics Study: Lessons Learned*, March 31, 2006.
[40] OM is defined as 1.8 times the measured organic carbon (OC).

Figure 4-51
Detroit Intermodal Freight Terminal Project
$PM_{2.5}$ Values and Trends at Nearby Monitors



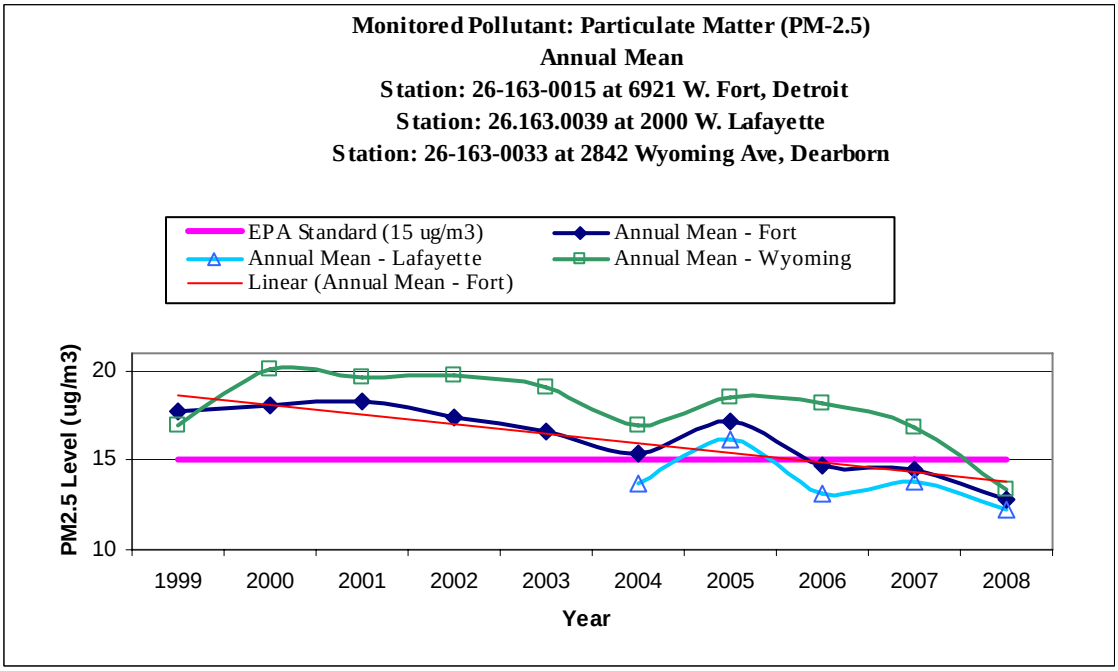
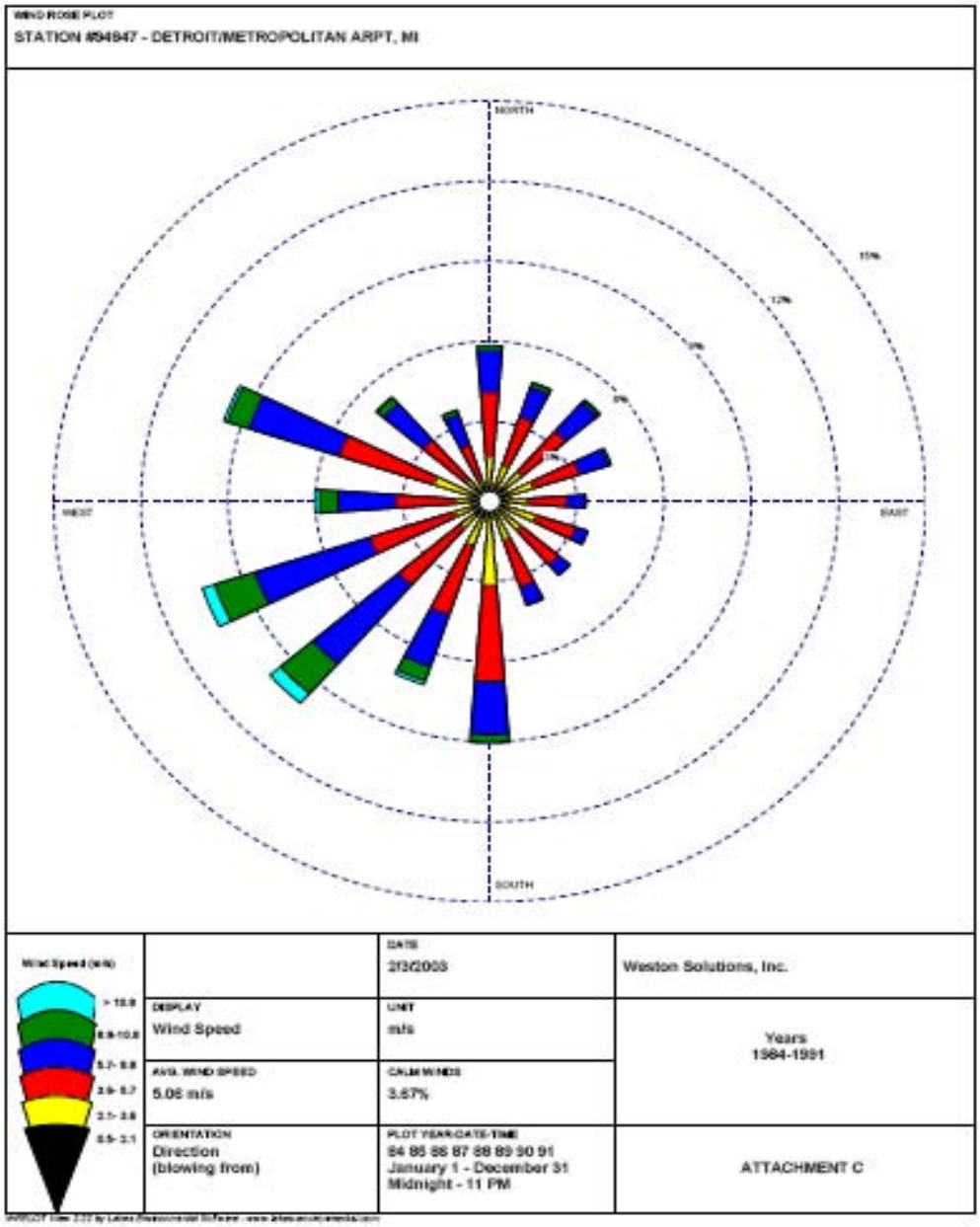
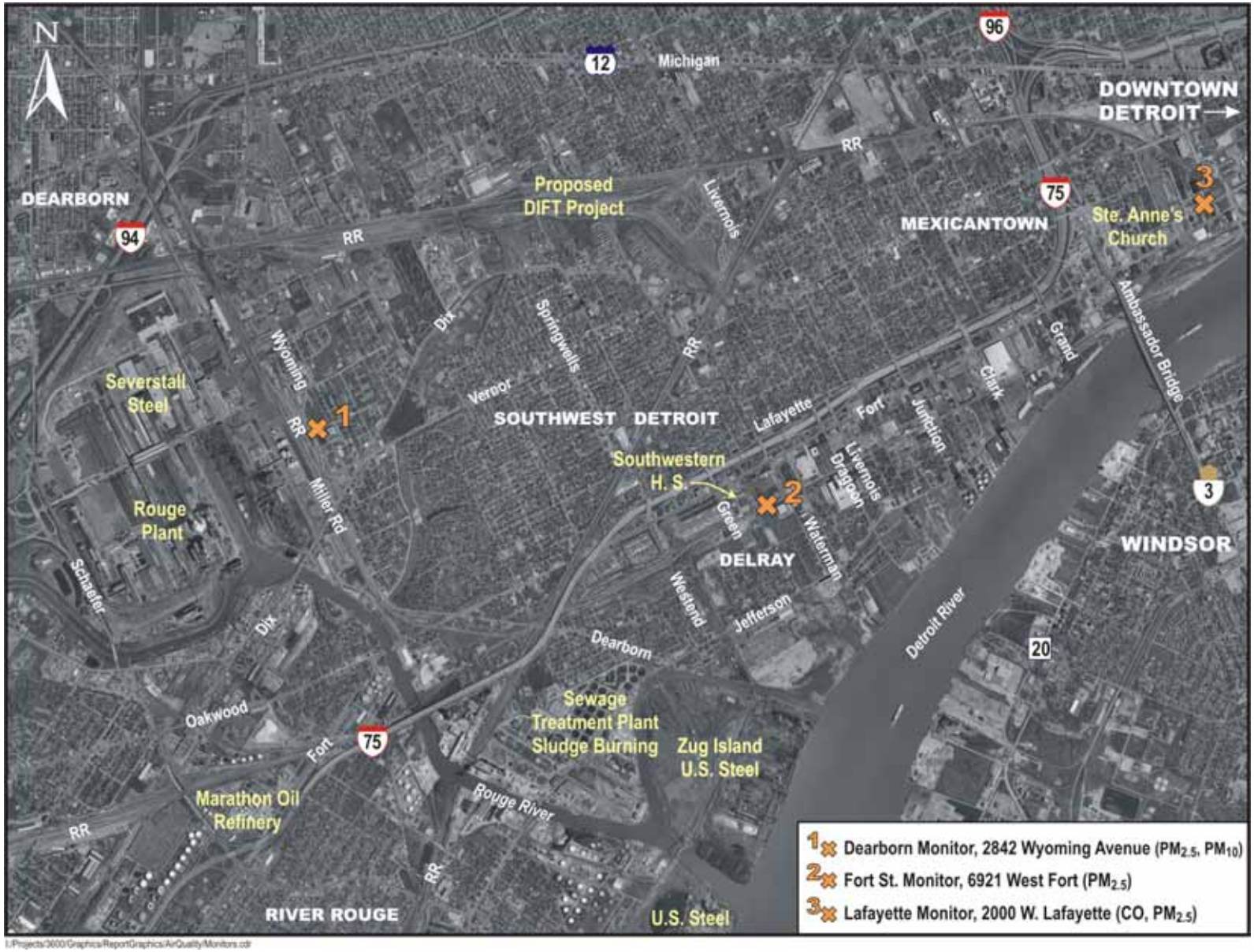


Figure 4-52
Detroit Intermodal Freight Terminal Study
Wind Rose for Detroit Metropolitan Airport



Source: http://www.deq.state.mi.us/documents/deq-rrd-DS-DetroitLead.pdf

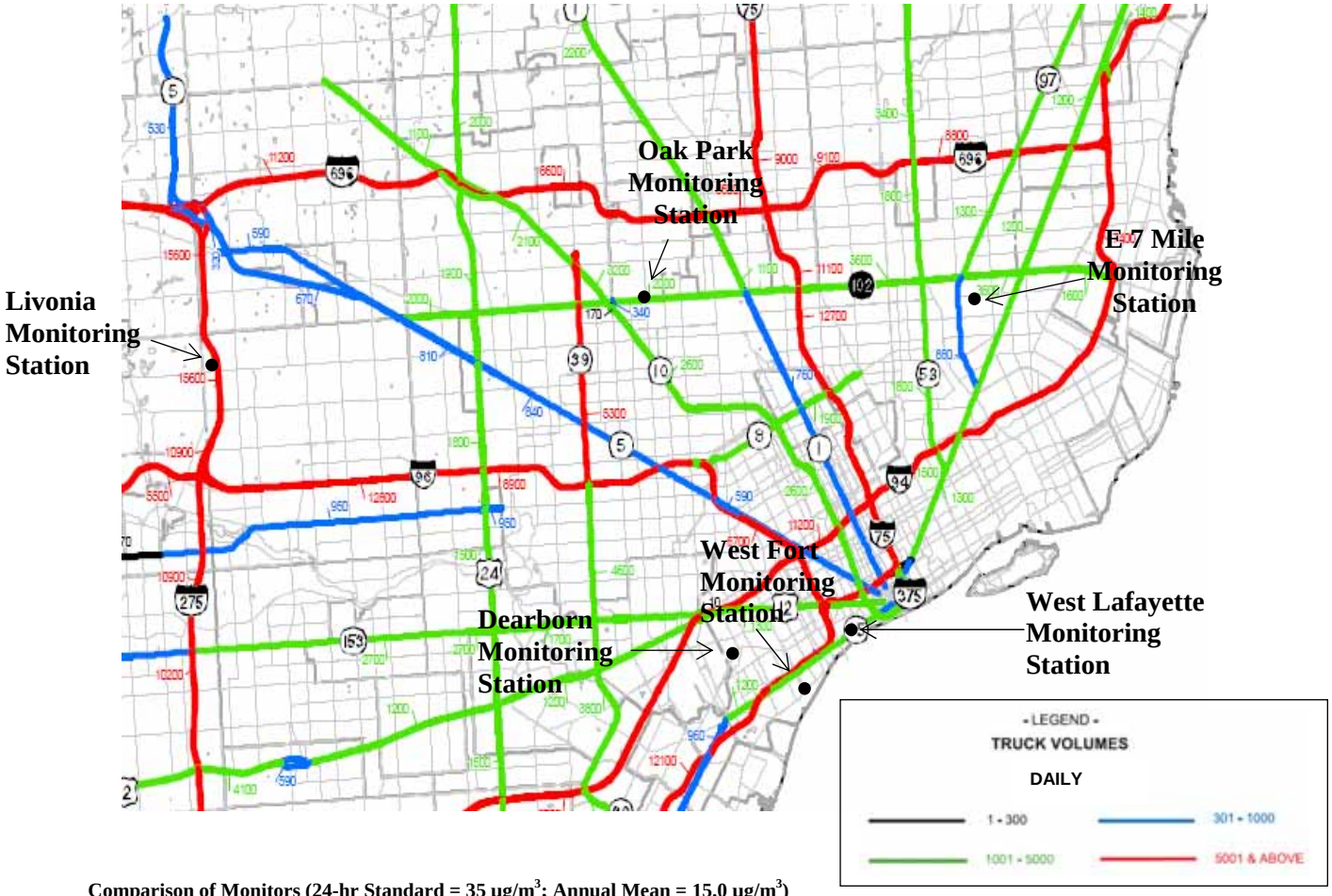
Figure 4-53
Detroit Intermodal Freight Terminal Study
Major Industries and Key Points



I:/Projects/3600/Graphics/ReportGraphics/AirQuality/Monitors.cdr

Source: The Corradino Group of Michigan, Inc.

Figure 4-54
Detroit Intermodal Freight Terminal Study
$PM_{2.5}$ Values Relative to Daily Truck Volumes



Comparison of Monitors (24-hr Standard = 35 µg/m^3; Annual Mean = 15.0 µg/m^3)

Name	Address	Monitor ID #	2004-06 $PM_{2.5}$		Nearest Major Roads	Distance to Monitor (miles)	2007 Daily 2-way Trucks
			24-hr.	Annual			
Dearborn	2842 Wyoming	261630033	44.2	17.2	I-94	1.2	10,000
					I-75	1.3	12,000
					Fort St.	1.2	1,200
West Fort	6721 West Fort	261630015	40.6	15.8	I-75	0.2	12,000
					Fort Street	0.1	1,200
West Lafayette	2000 W. Lafayette	261630039	32.4[a]	13.1[a]	I-75	0.3	12,000
					Fort Street	0.1	1,200
Livonia	38707 W 7 Mile	261630025	34.3	13.1	I-275	0.1	15,600
					I-96	3.0	12,800
					I-696	4.0	11,200
					Grand River	2.5	1,260
Oak Park	13701 Oak Park Dr.	261250001	39.2	13.4	I-696	0.6	6,600
					8 Mile Road	1.5	2,000
					Lodge Freeway (M10)	1.7	3,200
					Woodward (M1)	2.0	1,100
E 7 Mile	11600 E 7 Mile Rd.	261630019	41.2	14.1	I-94	2.5	7,400
					I-75	4.0	12,700
					I-696	4.0	8,800
					8 Mile Road	1.0	3,600

[a] Only one year of data.
Source: MDEQ and The Corradino Group of Michigan, Inc. Traffic volumes from MDOT Average Daily Commercial Traffic map on their website.

The Livonia monitor, with the highest adjacent daily truck volume (15,600 on I-275), had the lowest 24-hour and annual average mean values of $PM_{2.5}$. The Livonia monitor, like other monitors in Wayne County, is situated in a flat open area without substantial concentrations of high-rise buildings. Compared to Dearborn, measurements are 10 $\mu g/m^3$ (22%) lower on a 24-hour basis, and 4 $\mu g/m^3$ (24%) lower on an annual mean basis. The fact that the prevailing winds are from the southwest does not have a large effect at Livonia because, from an air quality standpoint, the worst case is winds parallel to a road, so vehicular emissions accumulate. Trucks pass very close to the Livonia monitor (0.1 mile), compared to the Dearborn monitor, where I-94 and I-75 are 1.2 and 1.3 miles away, respectively. All this is a clear indication that industry is the key player in the higher readings at the Dearborn monitor.

The 2008 data plotted in Figure 4-51 show a substantial drop in $PM_{2.5}$ values, compared to the data in Figure 4-54. U.S. Steel was temporarily closed down and the Severstal Steel plant has installed near air pollution control equipment. This again underscores that the newer data in Figure 4-51 reflects the reduction in point source $PM_{2.5}$.

SEMCOG Draft Weight of Evidence (WOE) and $PM_{2.5}$ Attainment Strategy

The most comprehensive information available on $PM_{2.5}$ for Southeast Michigan is found in information supporting SEMCOG's $PM_{2.5}$ SIP submittal to MDEQ, which is now under review. The information below is drawn from that documentation. It is noted that SEMCOG's base year is 2002 for developing their contribution to the SIP. So, 2002 is a reference point in some of the following information. And, the date the region is to reach attainment for $PM_{2.5}$ is 2010. The dates of analysis for the DIFT are 2004, as the base year; 2015, which represents a midway point in project development (construction activity peaks in 2014); and, 2030, which is the horizon year of SEMCOG's *Regional Transportation Plan.*

WOE observations for the Southeast Michigan region that relate to $PM_{2.5}$ follow:

- The Lake Michigan Air Directors Consortium (LADCO) finds the vast majority of $PM_{2.5}$ comes from outside the region (75% +). Within the region, the vast majority comes from Wayne County.

- The area surrounding the Dearborn and Southwestern High School (West Fort) monitors includes many $PM_{2.5}$ sources that are exempt from MDEQ emissions reporting.

- Numerous storage piles, unpaved lots, and barren lands exist near the Dearborn and Southwestern High School (West Fort) monitors. Only some facilities have fugitive dust plans.

- Industrial facilities near the Dearborn and Southwestern High School monitors have closed or scaled back their operations (as measured since 2002); examples are Carmeuse/Detroit Lime, Daimler Chrysler McGraw Glass, Frito Lay, IPMC, Gutter Suppliers, Inc., Darling International, and Honeywell.

- Significant local $PM_{2.5}$ reductions are being achieved from controls underway at the Sverstal and U.S. Steel facilities, as well as the Marathon oil refinery. These reductions are based on:

- A Consent Order issued by MDEQ to Sverstal North America, Inc. that operates steel production facilities just west of the Dearborn monitor.
- A Consent Decree entered into by EPA with Marathon Oil Company, which will substantially reduce nitrogen oxides and sulfur dioxide emissions at their Detroit refinery southwest of the project area.
- Improvements planned at U.S. Steel on Zug Island and south.

- As reported January 9, 2008,[41] Marathon Oil announced it will commit $260 million for pollution control in its proposed $1.9 billion onsite expansion. Targeted pollutants are sulfur dioxide, nitrogen oxide and PM. Also proposed are $2 million to install air quality monitors around the refinery and $1 million to reduce PM waste in neighborhoods around the plant, including street sweeping.

- Emission reductions are expected from retrofitting (basically rebuilding with horsepower reduction) four diesel switch engine locomotives (using federal Congestion Mitigation/Air Quality funding through SEMCOG together with MDEQ funding) at the Rougemere Rail yard just west of the Dearborn monitor (in some cases only hundreds of feet).

- The Dearborn monitor is close to several rail yards, one of which is immediately upwind of the monitor. LADCO recommended that locomotive emission reduction strategies, such as anti-idling and engine retrofits, be evaluated. As part of a federal Supplemental Environmental Project (SEP), DaimlerChrysler is to provide $1.5 million to install anti-idling equipment on approximately 40 switch engine locomotives operating in rail yards and industrial sites near the Dearborn and Southwestern High School monitors. This project is expected to reduce NOx emission by 96 tons/year and PM by 2.8 tons/year.

Monitoring data has led SEMCOG to a number of conclusions:

- $PM_{2.5}$ in Southeast Michigan is comprised largely of sulfates, nitrates, and organic carbon. At the Dearborn monitoring site, there is also a significant "crustal" component, which is largely iron.

- Between 2000 and 2006, $PM_{2.5}$ concentrations at all sites in the region steadily declined. The 3-year average concentration dropped 1.6 $\mu g/m^3$ between 2002 and 2006. The largest decreases have occurred at the sites with the highest concentrations: Wyoming, West Fort, and Wyandotte in the industrial core of Southeast Michigan's nonattainment area and concentrations have been decreasing faster than other sites. This is likely due to changes in emissions in the industrial area.

- Analysis of monitoring data shows that counties north of Wayne did not contribute to $PM_{2.5}$ nonattainment at the violating monitors. The analysis shows that the vast majority of the urban excess at these monitors on days when winds are from the northeast, north or northwest, comes from within Wayne County. Little increase is attributable to Oakland and Macomb counties. And in all cases, average concentrations at the violating monitors are well below the standard when winds are from these directions.

[41] *Detroit News*, January 9, 2008.

- A wind rose for the iron component of $PM_{2.5}$ at Dearborn points directly to the southwest. Conversely, the iron wind rose for Allen Park, while measuring much lower levels, points to the northeast. The Allen Park monitor is approximately five miles southwest of Dearborn. Additional wind direction analysis shows that, when winds are from the southwest average crustal concentrations at Dearborn are over 2.5 µg/m3 higher than those at Allen Park and are sometimes as much as 6 µg/m3 higher. This clearly indicates a significant local iron source directly between these two sites (which are approximately five miles apart) and closer to the Dearborn monitor. The Sverstal Steel facility lies in exactly this position. As part of a consent order and permit with the State, this facility has installed new bag houses on its blast and basic oxygen furnaces, as well as other control equipment. These changes appear to have been effective in lowering emissions.

- $PM_{2.5}$ 2008 values below the standards with U.S. Steel closed down and the Sverstal improvements in place support the indication that point sources are heavy contributors to $PM_{2.5}$.

$PM_{2.5}$ Project Conditions - Future (2015 and RTP Horizon Year - 2030)

The qualitative "hot-spot" analysis in this section is in addition to the process SEMCOG has used in past years to determine regional transportation conformity (see Section 4.8.7.4.1). The qualitative hot-spot analysis is designed to determine the effect of $PM_{2.5}$ on a localized basis, i.e., project-level conformity. This hot-spot analysis is designed to consider direct emissions only, not secondary particles, as these take several hours to form in the atmosphere, giving emissions time to disperse beyond the immediate area of concern.

The qualitative hot-spot analysis in this section addresses both the 24-hour and annual standards for $PM_{2.5}$. It includes the Livernois-Junction terminal and the roadway network which trucks would use to carry containers to and from that terminal. It does not need to include activity at key intersections where the LOS drops to D or worse as traffic analysis found there are none. It considers construction activity as dust could be a consideration in the SIP. The SIP for $PM_{2.5}$ is now under review by MDEQ and then EPA. Consequently, there are no "budgets" for $PM_{2.5}$.

The DIFT is a project of air quality concern because large numbers of diesel trucks are involved. The DIFT project and its increase in truck traffic will develop over a ten-year period, 2010 through 2019. There is no "year of opening" as there would be with many other transportation projects. Rather, the railroads, in conjunction with MDOT, will prioritize and capitalize a set of improvements over time. The year of peak construction is projected to be 2014, so for analysis purposes, the year of ***highest*** emissions is taken to be 2015. By this point, major features of the project are expected to be in place, such as the purchase of property and gate development. So, for example, the two new gates on Wyoming will be developed. The Detroit River International Crossing project will be in place (projected year of opening of 2015), limiting access to the DIFT by the reconstruction of the Livernois/Dragoon interchange with I-75. The further in time the analysis is performed, the cleaner the overall vehicle fleet will be. So, 2015 is a reasonable choice as the ***highest*** year of emissions.

While DIFT will develop over a ten-year period, it consists of a set of project elements at different times and locations, none of which last five years. The project design year is 2030, consistent with SEMCOG's *Regional Transportation Plan*.

$PM_{2.5}$ annual terminal pollutant burden are projected to be 14.9 tons in 2030 for the Preferred Alternative, compared to 30.9 tons for the No Action Alternative (Table 4-30). In 2015, the relationship is 8.8 tons for the Preferred Alternative to 26.0 for the No Action Alternative. Existing (2004) $PM_{2.5}$ totals 43.5 tons a year. Therefore, the Preferred Alternative $PM_{2.5}$ terminal burden will be less than one fourth the 2004 condition. The principal change will come with paving the yard. Though $PM_{2.5}$ is a small fraction of the particulate matter on the unpaved yard, the yard is so big that even the small portion that is unpaved produces a large quantity of pollution.

The DIFT project will result in more trucks overall, but redistribute them away from residential areas. This would happen by shifting trucks to two new gates off Wyoming Avenue, reorienting intermodal truck traffic on Livernois Avenue to the north, and closing the Dix/Waterman gate to the Livernois-Junction Yard (Table 4-34).

Table 4-34
Detroit Intermodal Freight Terminal Study
Truck Volumes – Preferred Alternative and No Action

			2004	2015		2030		Pref. minus No Action	
	Road Segment		Base	No Action	Pref.	No Action	Pref.	2015	2030
Liv-Junc Yard	From	To							
Wyoming	Dix	New Gate	1350	1499	1644	1634	2016	146	382
	New Gate	Kronk	1534	1703	2586	1856	3684	883	1828
	Kronk	I-94 Ramp	1360	1510	2128	1646	3209	619	1564
	I-94 Ramp	Michigan	1304	1447	2066	1578	3141	619	1564
Lonyo	Michigan	Kronk	780	866	862	944	940	-4	-4
	Kronk	Dix	696	773	0	842	0	-773	-842
Central	Michigan	Kronk	1024	1137	895	1239	998	-241	-241
	Kronk	Dix	955	1060	970	1156	1066	-90	-90
Perimeter Rd	Lonyo	Central	0	0	431	0	470	431	470
Livernois	Michigan	Exist. Gate	2275	2548	2552	2801	3433	4	633
	Exist. Gate	Dix	2420	2740	1749	3041	1927	-992	-1114
	Dix	I-75	1081	1226	618	1364	694	-609	-670
Dragoon	Dix	I-75	968	1101	492	1227	557	-609	-670
Kronk	Wyoming	Lonyo	300	333	0	363	0	-333	-363
	Lonyo	Central	239	265	0	289	0	-265	-289
	Central	Livernois	238	264	301	288	580	37	292

[a] To project Preferred Alternative traffic to 2030, background traffic was grown at 1% a year until 2025 then 0% a year to 2030. Intermodal traffic was based on lifts growth.
Source: The Corradino Group of Michigan, Inc.

Truck volumes would decrease on Livernois Avenue and Dragoon Street south of the existing gate to I-75 (☐ red box on Table 4-34). Lonyo traffic would shift to Central Avenue (☐ orange box) and Kronk Street would be closed by the project (☐ green box). Traffic on Central Avenue will decrease because several large trucking concerns will be relocated by the project removing some truck traffic from Central (☐ blue box). Truck volumes will increase on Wyoming, between the new proposed gates and Michigan Avenue and, to a lesser extent, south of the gates to Dix. The Dearborn monitor is located on Wyoming between the new gates and Dix.

In the intermediate year of 2015, the project is estimated to result in about 600 fewer trucks per day to the Livernois-Junction Yard area (○ red oval on Table 4-35) because, even though the project brings new trucks to the terminal, it eliminates existing land uses that generate many truck trips. In the near term, as these land uses are converted, the result would be fewer trucks. In 2030, with further intermodal growth, there will be approximately 700 new truck trips (○ blue oval) in the Livernois-Junction Yard area because intermodal traffic will continue to increase beyond 2015, while there are no new relocations of non-intermodal trucking activities between 2015 and 2030. Roads that, today, generate a substantial amount of dust will also be closed at the beginning of project construction, while project lifts and truck traffic will increase gradually thereafter. As a result, there are still increases on certain links, even in 2015, as shown on Figure 4-55.

Table 4-35
Detroit Intermodal Freight Terminal Study
Net Truck Trips in Livernois-Junction Terminal Area

	Truck Trips	
Condition	**2015**	**2030**
Preferred Alternative Intermodal Trucks	1974	3800
No Action Alternative Intermodal Trucks	956	1510
Increase with Preferred Alternative	1018	2290
Trucks eliminated at Relocated Business	-1600	-1600
Net Change in Trucks	-582	690

Source: The Corradino Group of Michigan, Inc.

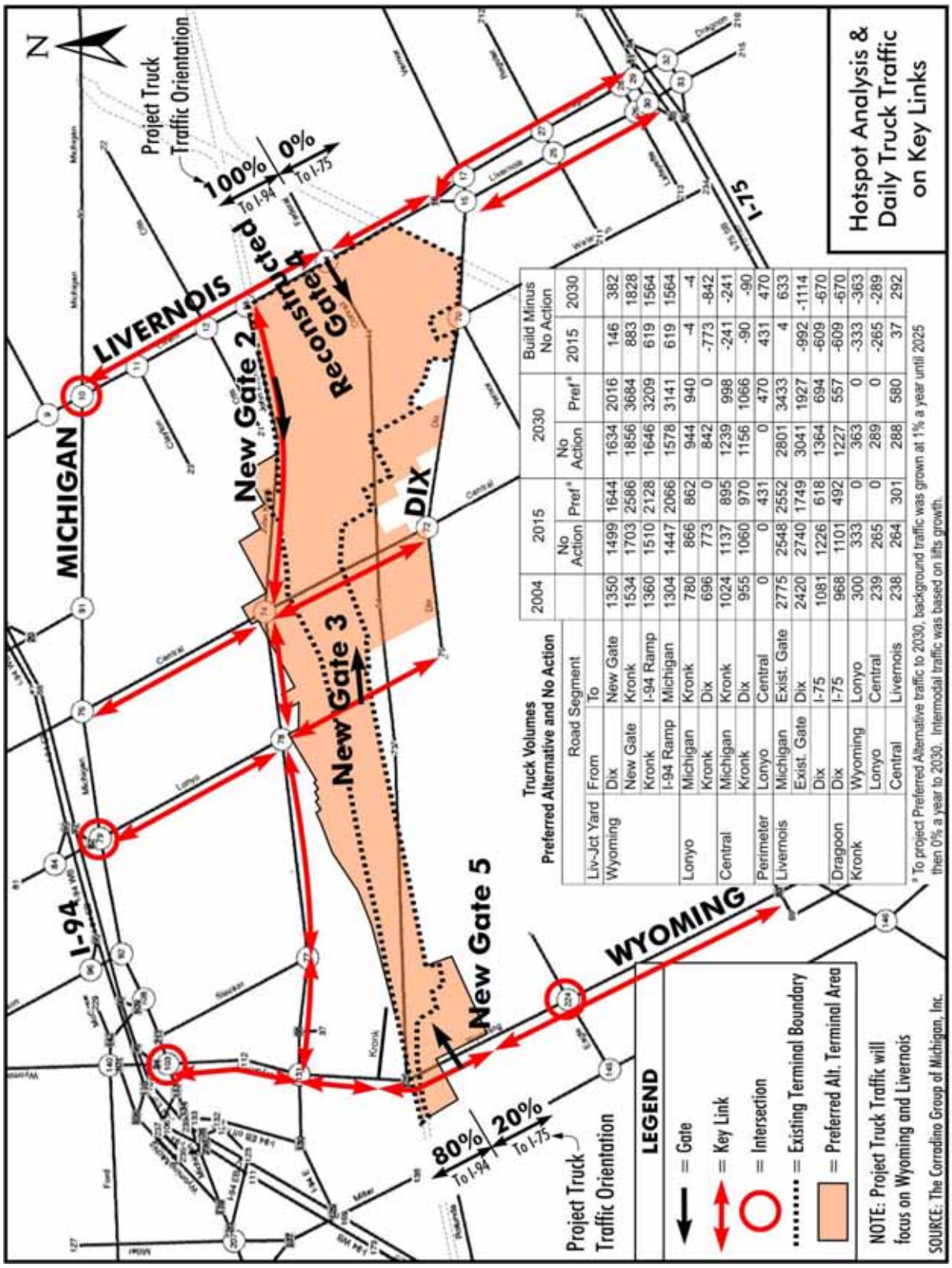
For this qualitative analysis, three types of hot-spots have been identified (Figure 4-55): key intersections near the Livernois-Junction Yard; gates serving the yard; and, roadway links around the Livernois-Junction Yard with heavy truck traffic under the Preferred Alternative.

Intersections – $PM_{2.5}$

The traffic analysis (Section 4.1) examined over 100 intersections around the intermodal terminals to determine whether project-related traffic would cause impacts. The analysis found the truck (and auto) traffic changes of the Preferred Alternative will not result in any intersections operating at Level of Service D, or worse, in the peak hour in 2015 or in 2030 in the Livernois-Junction Yard area. This analysis is based on additional traffic counts performed since the DEIS. Future background volumes were assumed to increase one percent a year from the present. Based on actual historic patterns, this overstates actual traffic growth. In addition, SEMCOG released a study in 2007 outlining reduced growth and travel in the region.[42] So, the stated conditions for traffic represent worst-case conditions for air quality purposes.

[42] SEMCOG, *A Region in Turbulence and Transition*, April 2007.

Figure 4-55
Hotspot Analysis and Daily Truck Traffic on Key Links



Truck Volumes
Preferred Alternative and No Action

Road Segment			2004	2015		2030		Build Minus No Action	
	From	To		No Action	Pref*	No Action	Pref*	2015	2030
Liv-Jct Yard	Dix	New Gate	1350	1499	1644	1634	2016	146	382
Wyoming	New Gate	Kronk	1534	1703	2586	1856	3684	883	1828
	Kronk	I-94 Ramp	1360	1510	2128	1646	3209	619	1564
	I-94 Ramp	Michigan	1304	1447	2066	1578	3141	619	1564
Lonyo	Michigan	Kronk	780	866	862	944	940	-4	-4
	Kronk	Dix	696	773	0	842	0	-773	-842
Central	Michigan	Kronk	1024	1137	895	1239	998	-241	-241
	Kronk	Dix	955	1060	970	1156	1066	-90	-90
Perimeter	Lonyo	Central	0	0	431	0	470	431	470
Livernois	Michigan	Exist. Gate	2775	2548	2552	2801	3433	4	633
	Exist. Gate	Dix	2420	2740	1749	3041	1927	-992	-1114
	Dix	I-75	1081	1226	618	1364	694	-609	-670
Dragoon	Dix	I-75	968	1101	492	1227	557	-609	-670
Kronk	Wyoming	Lonyo	300	333	0	363	0	-333	-363
	Lonyo	Central	239	265	0	289	0	-265	-289
	Central	Livernois	238	264	301	288	580	37	292

* To project Preferred Alternative traffic to 2030, background traffic was grown at 1% a year until 2025 then 0% a year to 2030. Intermodal traffic was based on lifts growth.

Gates – $PM_{2.5}$

Average check-in and check-out times of four minutes have been assumed at each terminal gate, compared to five minutes for the less efficient layouts of No Action. Actual Preferred Alternative times may be less. Four gates are distributed around the perimeter of the Livernois-Junction Yard under the Preferred Alternative. With No Action, all trucks enter the yard off of Livernois or Waterman at Dix.

With the Preferred Alternative, the maximum two-way daily gate truck volume in 2030 at any one gate (Gate 5) is forecast to be 1270. Next in volume would be Gate 3 with 1,140 two-way daily trucks (Figure 4-55). Total two-way trucks for all gates would be 3800. The annual $PM_{2.5}$ pollutant burdens in tons for the idle time related to delay at the gates is 0.07 tons in 2015 and 0.13 tons in 2030.

The amount of delay and associated idling is small in comparison to the burden reduction the project bring – 17 tons in 2015 and 16 tons in 2030.

Roadway Links – $PM_{2.5}$

Figure 4-55 shows anticipated truck volumes on key roadway links near the Livernois-Junction Yard. It also shows that intermodal trucks will use Wyoming Avenue (80% north and 20% south) and Livernois Avenue (100% north to I-94) to get to the yard. This pattern would focus truck traffic on access routes that carry trucks today and reorient truck traffic away from residential areas, notably homes along the Livernois/Dragoon one-way pair that connects the Livernois-Junction Yard to I-75. Today, that one-way pair is a route of choice by truckers. The noted shifts are consistent with the wishes of local residents. The Livernois gate will be reengineered to prevent turns to and from the south. Also, the existing Waterman gate on the south side of the Livernois-Junction Yard will be closed. Waterman is another route that passes through a residential area.

The only links with traffic increases due to the DIFT, other than the new Perimeter Road (i.e., a new Kronk Street), is Livernois Avenue north of the terminal and Wyoming Avenue. The Dearborn monitor is on the section of Wyoming between Dix and the new Gates 3 and 5. The monitor is also directly across from the Sverstal Steel facility which, together with improvements at U.S. Steel and the Marathon Refinery, are expected to experience an annual PM pollutant burden reduction of 330 tons. Federal Congestion Mitigation Air Quality funds are rebuilding four switch locomotives nearby with GenSet equipment to reduce PM emissions. These switch locomotives now idle while sitting on tracks as close as 250 feet from the Dearborn monitor. GenSet locomotives have multiple off-road, low-emitting diesel engines. Engines not in use are shut down.

The overall roadway network pollution burden associated with the Livernois-Junction Yard would be reduced with the Preferred Alternative. In the base year of 2004, about 1.5 tons of $PM_{2.5}$ were generated on the identified road network of key links (Table 4-29, bottom row). In 2015 these levels would be reduced by over half a ton (build and no-build conditions). By 2030, both the Preferred Alternative and No Action Alternative would generate only one-third of the 2004 amounts. While the MOBILE6.2 emission factors are not reflective of individual links, they allow a comparison of links. The road link of Wyoming between Dix and the new gates would see its burden fall from 0.13 tons annually in 2004 to 0.06 in 2015 and 0.05 in 2030, with either the Preferred Alterative or No Build Alternative. At the Wayne County level, PM reductions will be realized from the shift of traffic from truck to rail.

The vehicles-per-day analysis found the project would increase truck traffic in the vicinity of the Dearborn monitor by 146 in 2015. It is not believed the increase in truck traffic by the Dearborn monitor will lead to new air quality violations or the delay in attaining standards because:

- It is anticipated that the Dearborn monitor will attain the $PM_{2.5}$ annual standard of 15 $\mu g/m^3$ by 2010. (The applicable 24-hour conformity standard of 65 $\mu g/m^3$ has never been an issue.) Though the 2007 value of 16.9 $\mu g/m^3$ was over the standard, values at the end of the year were lower. This reflects the implementation during the year of a Sverstal Steel baghouse (air quality control mechanism) just upwind of the monitor. All values in Michigan, except one, met the annual standard in 2008.

- Implementation of engine-idle packages on the switch engines in the CONRAIL Rougemere Yard, across Wyoming from the Dearborn monitor, is expected to have direct results at that monitor.

- Coincident with the above-cited activities is the institution of low sulfur fuel in 2007 and the continuation of truck fleet turnover to much cleaner diesel engines, dampening the effect of the small increase in truck traffic.

The emissions factors shown in Figure 4-50 illustrate that, for the typical roadway link speed of 30 mph, the emission factor for $PM_{2.5}$ drops from 0.31 grams per mile in 2004, to 0.07 in 2015 (a 75 % reduction) and to 0.03 in 2030 (a 90 % reduction).

Construction Considerations – $PM_{2.5}$

The $PM_{2.5}$ analysis has considered roadway and terminal construction. However, in accordance with 93.123(c)(5), emissions from construction-related activities can be considered temporary, if they occur only during the construction phase and last five or fewer years at any individual site. Implementation of the DIFT project will extend for ten years but consists of a series of elements none of which is expected to last five years. Temporary emissions are not required to be included in hot-spot analyses.

Documentation of Public Involvement – $PM_{2.5}$

There has been and will continue to be extensive public involvement for the DIFT project. It is documented in Section 7 of this FEIS. Air quality has been a recurrent topic at public meetings. Early coordination with agencies has been reinforced and augmented by the interagency consultation involved in preparing the *Air Quality Protocol* that has guided the development of the air quality analysis.

Conclusions Related to $PM_{2.5}$ Qualitative Hot-spot Analysis

The conclusion of this qualitative $PM_{2.5}$ hot-spot analysis is that the proposed project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. Therefore, no mitigation is required. This applies to both the 24-hour and annual standards. This conclusion, subject to interagency consultation, is based on the following:

- SEMCOG and MDEQ have been moving aggressively to address air quality concerns, in general, and $PM_{2.5}$, specifically. This includes programs such as diesel locomotive retrofits and controls on consumer products.

- EPA is addressing the non-local component of $PM_{2.5}$ pollution through programs such as the Clean Air Interstate Rule, stricter controls on vehicle emissions – including locomotives, and the low-sulfur fuel introduced in 2007. In March 2008, EPA issued a final rule requiring that idle shutdown packages be added when locomotives are remanufactured. This normally occurs every five to 15 years.

- A number of major polluters believed to be significant contributors to the $PM_{2.5}$ emission problem have closed. Mandated enforcement controls are being applied at other local industries such as Sverstal Steel, Marathon Oil and U.S. Steel. Marathon Oil has announced additional air quality control measures as part of a proposed expansion.

- The SIP analysis addresses the SEMCOG region's attainment of the $PM_{2.5}$ 65 $\mu g/m^3$ 24-hour and 15 $\mu g/m^3$ annual standards by 2010. DIFT implementation will be just beginning at that point. Truck traffic will initially decrease as existing businesses are acquired for right-of-way.

- Information in Figure 4-54 demonstrates that vehicular activity in Southeast Michigan can occur without violation of standards. The Livonia monitor is in close proximity to some of the heaviest truck movements in the region and is not violating the $PM_{2.5}$ standards. And, this was occurring before the 2007 elimination of sulfur from fuels and more stringent diesel engine requirements.

- There are a number of trucking terminals in the area. To reduce fuel costs, most trucking companies are implementing anti-idling policies.

- While recognizing that MOBILE6.2 emission factors are not designed for localized analysis, an examination of Wyoming between Dix and the new Livernois Junction west side entrances shows the 2004 $PM_{2.5}$ annual pollutant burden of 0.13 tons would be cut in half by 2015 and reduce further to 0.05 tons in 2030 with a negligible difference between no action and the Preferred Alternative.

Summary – Preferred Alternative – $PM_{2.5}$

SEMCOG believes it will reach attainment of the annual $PM_{2.5}$ standard by 2010, before the DIFT project commences. Monitoring data for 2008 that showed all but one monitor in Michigan under the standards supports this belief. Emission factors are trending down faster than truck traffic will increase. Every indication is that concentrations at nearby monitors will continue to trend downward as they are today. An example is that monitors next to some roadways with the highest data from truck volumes in the region (Livonia) are not violating standards. Therefore, it is concluded that the proposed project will not cause new air quality violations, worsen existing violations, or delay timely attainment of the annual or 24-hour NAAQS for $PM_{2.5}$.

Based on the above analyses, the project conforms to the Clean Air Act and no mitigation is required.

PM_{10} Hot-spot Qualitative Analysis

The PM_{10} hot-spot analysis is substantially the same as the $PM_{2.5}$ hot-spot analysis. The project description is presented in Section 2. A hybrid of Methods A and B is used. The documentation

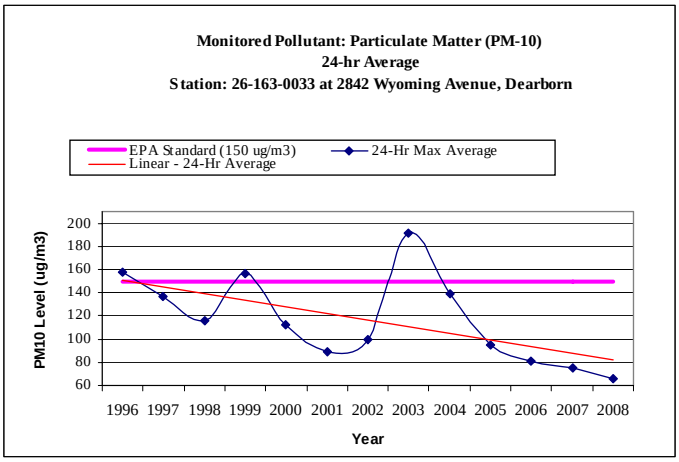
of public involvement is that presented for the $PM_{2.5}$ analysis. The DIFT project is of "air quality concern" (*Transportation Conformity Guidance*, Chapter 1.3) for PM_{10} because it would represent a transfer point that has "a significant number of diesel vehicles congregating at a single location." (40 CFR 93.123(b)(1)(iii)).

Background Conditions – PM_{10}

MDEQ's *2006 Air Quality Report* presents 2002 EPA data showing that for PM_{10} Michigan's sources are: point sources 34 percent, area sources 32 percent, non-road vehicles 20 percent, and on-road vehicles 14 percent.

From 1996 to 2005, there were five exceedances of the 24-hour PM_{10} standard in Michigan. Each occurred at the Dearborn monitoring station (the closest PM_{10} monitor to the proposed project). Two exceedances in 2003 and one in 2004 happened when construction occurred near the Dearborn monitor. However, only the 2004 exceedance was considered an "exceptional event" under federal criteria. That concentration was not used for attainment/nonattainment purposes, but the high value for 2003 was used, as the trend depicted in Figure 4-56 illustrates. In spite of that, the decline in PM_{10} is clearly evident. Many of the actions related to $PM_{2.5}$ and point sources that are being pursued by MDEQ will have beneficial effects on PM_{10}, as well.

Figure 4-56
Detroit Intermodal Freight Terminal Study
PM_{10} at Dearborn Monitor



Source: The Corradino Group of Michigan, Inc. using MDEQ data.

PM_{10} Project Conditions - Future (2015 and RTP Horizon Year - 2030)

As with $PM_{2.5}$, a perspective on likely project effects on PM_{10} concentrations can be gained by examining changes in future emission factors. Examples for the 10 mph speed that represents truck operation within the Livernois-Junction Yard, and 30 mph that represents roadway links, PM_{10} emission factors decline over time as shown below.

10 mph

- 2004 – 0.38 grams/mile = 100%
- 2015 – 0.11 grams/mile = 29% of 2004
- 2030 – 0.05 grams/mile = 13% of 2004

30 mph

- 2004 – 0.36 grams/mile = 100%
- 2015 – 0.11 grams/mile = 28% of 2004
- 2030 – 0.05 grams/mile = 14% of 2004

As noted in the $PM_{2.5}$ qualitative hot-spot analysis, no intersections will operate at Level of Service D or worse and so, under the guidelines for hot-spot analysis, no intersections are hot-spots.

Idling trucks in gate areas are expected to generate through 0.08 annual tons of PM_{10} in 2015 and 0.15 in 2030.

The roadway network associated with the Livernois-Junction Yard would experience a decline in PM_{10} pollution in the future with or without the project. In the base year 2004, about 2.2 tons of PM_{10} were generated on the network of key links. By 2010, that would be reduced by almost one-half to about 1.1 tons, and by 2030, it would be 1.2 tons.

Construction Considerations – PM_{10}

The DIFT project involves roadway and terminal construction. However, in accordance with 93.123(c)(5), emissions from construction-related activities can be considered temporary, if they occur only during the construction phase and last five or fewer years at any individual site. This is expected to be the case on the DIFT. Temporary emissions are not required to be included in hot-spot analyses. Implementation of the DIFT project will extend for ten years but consists of a series of elements none of which is expected to last five years.

Conclusions Related to PM_{10} Qualitative Hot-spot Analysis

The conclusion of this qualitative PM_{10} hot-spot analysis is that the proposed project will not cause new air quality violations. There are no existing violations. This applies to both the 24-hour standard and the revoked annual standard. This conclusion, subject to interagency consultation, is based on the following:

- SEMCOG and MDEQ have been moving aggressively to address air quality concerns, in general, and PM specifically. This includes programs such as diesel locomotive retrofits, and controls on consumer products.

- EPA is addressing the non-local component of PM pollution through programs such as the Clean Air Interstate Rule, stricter controls on vehicle emissions – including locomotives, and the low-sulfur fuel introduced in 2007. In March 2008, EPA issued a final rule requiring that idle shutdown packages be added when locomotives are remanufactured. This normally occurs every five to 15 years.

- A number of major polluters believed to be significant contributors to the $PM_{2.5}$ emission problem have closed. Mandated enforcement controls are being applied at other local industries such as Sverstal Steel, Marathon Oil and U.S. Steel. Marathon Oil has announced additional air quality control measures as part of a proposed expansion. Reduction of $PM_{2.5}$ at these locations will reduce PM_{10} as well.

- The SIP analysis addresses the SEMCOG region's attainment of the $PM_{2.5}$ 65 $\mu g/m^3$ 24-hour and 15 $\mu g/m^3$ annual standards by 2010. DIFT implementation will be just beginning at that point. Truck traffic will initially decrease as existing businesses are acquired for right-of-way. Again, measures to reduce $PM_{2.5}$ will reduce PM_{10}.

- There are a number of trucking terminals in the area. To reduce fuel costs, most trucking companies are implementing anti-idling policies.

- While recognizing that MOBILE6.2 emission factors are not designed for localized analysis, an examination of Wyoming between Dix and the new Livernois Junction west side entrances shows the 2004 PM_{10} annual pollutant burden of 0.18 tons would be cut in half by 2015 and stay at that level through 2030 with a negligible difference between no action and the Preferred Alternative.

Summary- Preferred Alternative – PM_{10}

Substantial reductions in PM_{10} are expected from industrial sources and monitors near these sources have been trending down. Emission factors are trending down faster than truck traffic is increasing. Every indication is that concentrations at the Dearborn monitor will continue to trend downward as they are today. Therefore, it is concluded that the proposed project will not cause new air quality violations of the 24-hour NAAQS for PM_{10}.

4.8.7.5 Diesel Emissions Control Measures and Expected Effects

Based on the above analyses, the project conforms to the Clean Air Act and no mitigation is required. Nonetheless, emission control measures will be part of the DIFT project. The Preferred Alternative includes a number of on-terminal air quality measures, some of which are required by law. These include:

EPA regulations will continue to improve air quality on terminals as well as roadways. By mid-2010 non-road diesel equipment, such as that used to move containers, will be required to use the same low-sulfur fuel that on-road vehicles began using in 2007. (This fuel prevents the fouling of pollution control equipment on newly manufactured vehicles.) Locomotives have until 2012 to start using the fuel. But, as a practical matter, refineries are fully converting to production of the ultra low sulfur fuel. All new and remanufactured locomotives must met Tier 3 air quality standards by 2009 (which includes idle reduction requirements) and Tier 4 by 2015 (essentially adding afterburners and benefiting from clean diesel). So, new equipment will continue to be cleaner.

The railroads could adopt voluntary measures. While new diesel equipment will have cleaner burning engines and use low-sulfur fuels, hybrid or electric vehicles are an option. An additional optional measure that may be available would be a continued partnering on conversion of local switch locomotives to units that emit less and reduce idling. It is notable that CSX has received from SEMCOG in collaboration with MDOT Congestion Mitigation Air Quality (CMAQ) grants to retrofit four switch locomotives. These must remain in the Dearborn and Detroit yards for a minimum of five years.

4.8.7.6 Construction Impacts – Preferred Alternative

Construction for the DIFT would represent a series of projects spread over time: 1) land acquisition and clearing one section at a time; 2) site development; and, 3) roadway improvements at I-94 and Central Avenue. Therefore, the provisions of 40 CFR 93.153 regarding general conformity do not apply.

It is anticipated that most construction related to ground disturbance would occur in one year. MDOT's Standard Construction Specification Sections 107.15(A) and 107.19 would apply to control fugitive dust during construction and cleaning of haul roads.

Construction mitigation is not required, but several voluntary measures are planned that include strategies that reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Also, technological adjustments to construction equipment, such as off-road dump trucks and bulldozers, could be an appropriate strategy. These technological fixes could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. The use of ultra-low sulfur diesel will be in effect for non-road vehicles in 2010.

4.9 Noise and Vibrations

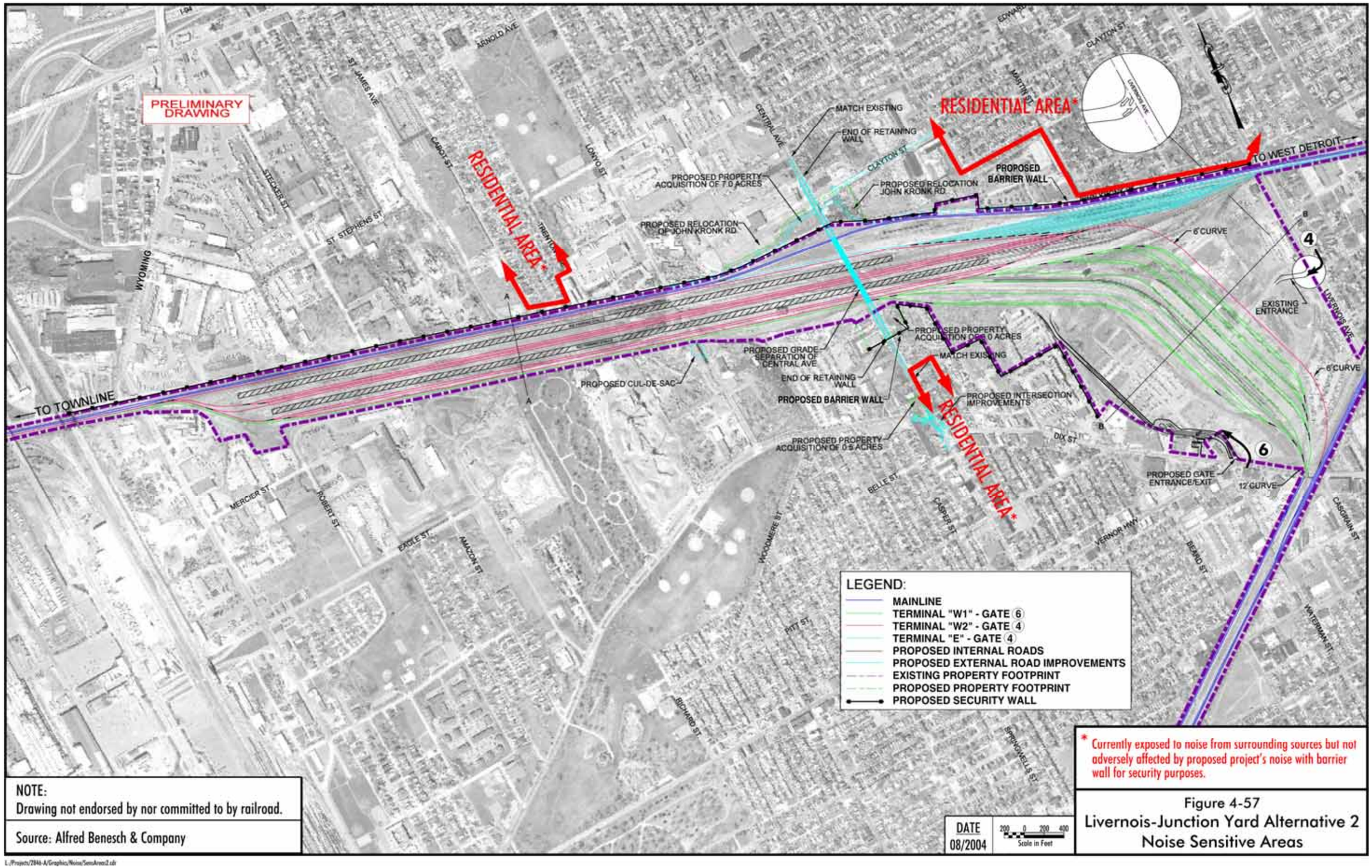
Receptors with sensitivity to noise exist adjacent to the Livernois-Junction Yard area, near the CP/Expressway and CN/Moterm terminals, and along several residential streets that experience truck traffic at these and the CP/Oak terminal (see areas indicated by red arrows on Figures 4-57 through 4-62). Analysis was performed to determine whether, with the Action Alternatives, any areas qualify for noise abatement in the loudest hour of the day. The reader is referred to the *Noise Study Technical Report* for more detail. Analysis found that the number of new intermodal trains at the Livernois-Junction Yard would be expected to go from two in 2004 to 8, 10, 18 and 24 for alternatives 1 through 4. Those numbers assumed the continued operation of CP/Expressway, moved to the Livernois-Junction Yard. Since that time, as noted, that operation has ended. ***The Preferred Alternative will bring an estimated 28 intermodal trains to the yard. These trains will come in and go out in all directions, so these volumes do not represent trains on any one link.***

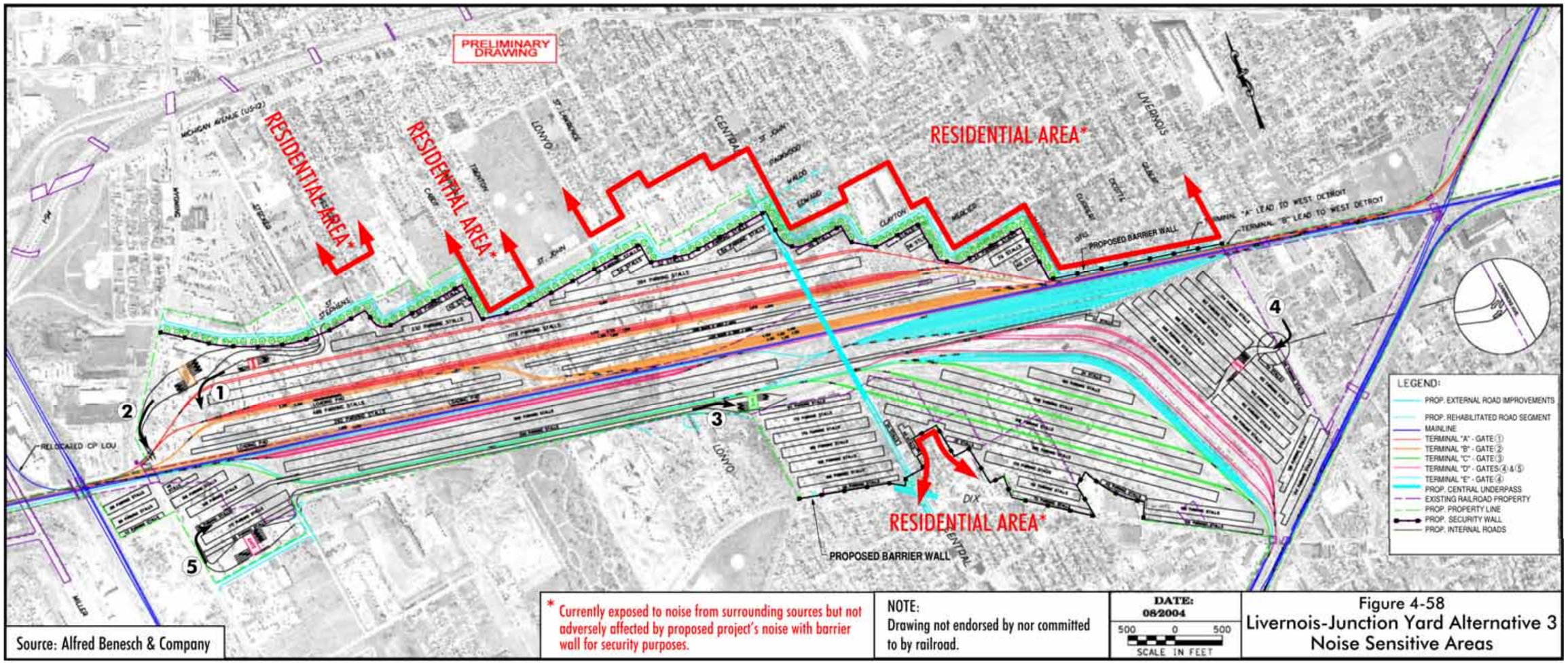
At the Livernois-Junction Yard, homes border the north side of John Kronk Street. At the CP/Expressway terminal, the United Community Hospital is along the north side. (Note that since the DEIS was published, this hospital has closed.) There are no sensitive noise receptors within 1,000 feet of the CP/Oak terminal. The residential area west of the Moterm terminal is affected by a "consent judgment" issued in 1993 that addressed disputes between the City of Ferndale and CN related to rail terminal issues. Pursuant to the judgment, a wall was constructed by CN on the west edge of the terminal. Expansion of CN/Moterm under the action alternatives would have occurred south of Eight Mile Road in the State Fairgrounds. There is a residential neighborhood east of the State Fairgrounds.

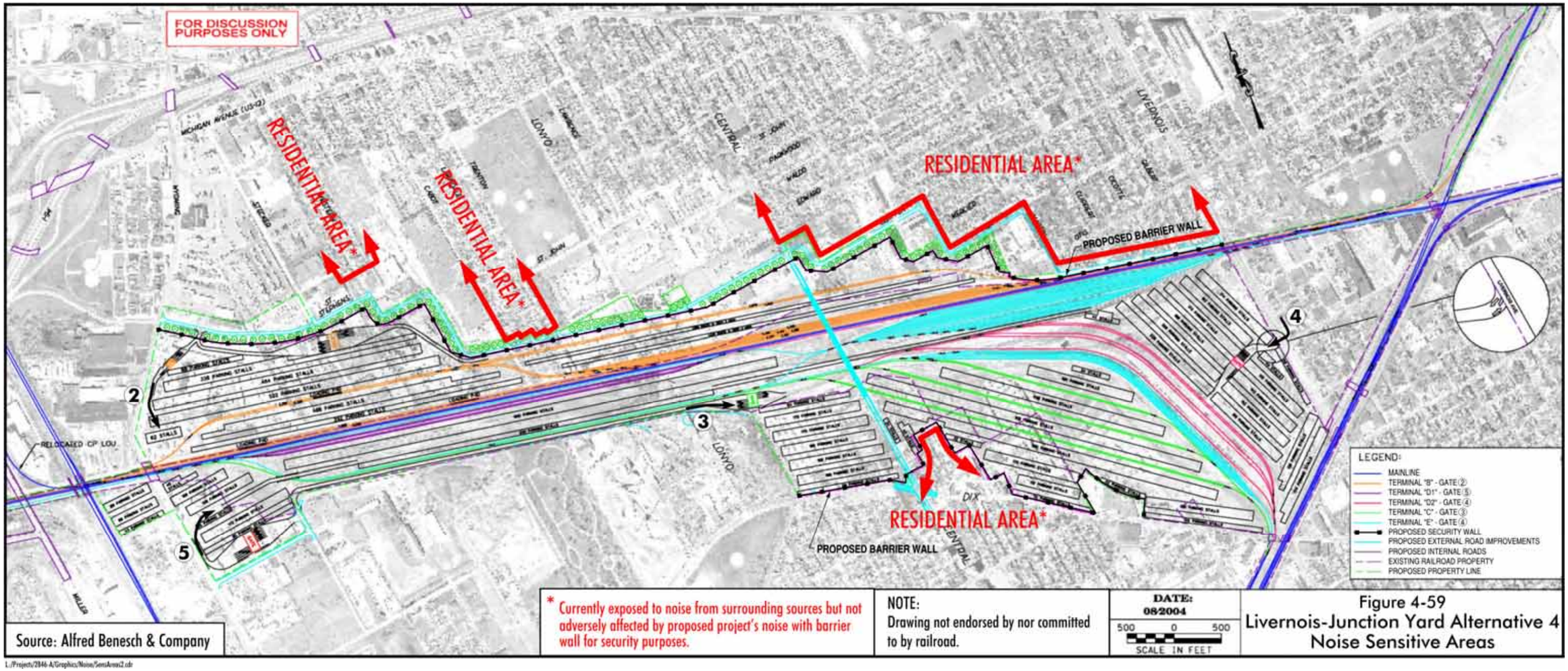
Noise level changes occur where there are changes in train volumes and/or where on-street traffic volumes change. For MDOT projects, noise is evaluated on the basis of the loudest hour, as expressed in $Leq_{(1hr)}$, i.e., the equivalent noise level or "average" of sound over that loudest hour. Rail noise is often expressed in terms of "Ldn," the day-night noise equivalent level. It is the "average" sound level over a 24-hour period, with a 10-dBA penalty added to noise occurring between 10:00 p.m. and 7:00 a.m. The penalty is added because of the greater sensitivity to noise during the night. Future train volumes were estimated on rail lines around each of the terminals to determine whether noise levels would increase in the loudest hour and over a 24-hour period. Likewise, changes in truck volumes serving the terminals were projected.

There are many noise sources around the terminals today associated with truck traffic and the activities conducted on the prevailing industrial land uses. A portion of the truck traffic is related to intermodal terminal activity today and would be in the future, although in the future the trucks would be directed to streets away from residential areas, unlike the condition today at all terminals. Notable non-intermodal noise sources near the Livernois-Junction Yard today are:

- Conveyer belt operations of the material handling business on the south side of the Livernois-Junction Yard west of Lonyo. These activities can be heard all the way across the yard in the neighborhood to the north.
- Equipment noise from a variety of industrial/manufacturing activities along the north side of Kronk. In several areas, chain link fences and, sometimes, the width of a street are all that separate these activities from residences.
- Truck traffic on Lonyo, Central, Kronk, and Livernois/Dragoon where residential properties are very close to the roadway.


PRELIMINARY DRAWING
RESIDENTIAL AREA*
RESIDENTIAL AREA*
RESIDENTIAL AREA*
MATCH EXISTING
END OF RETAINING WALL
PROPOSED PROPERTY ACQUISITION OF 7.0 ACRES
PROPOSED RELOCATION JOHN KRONK RD
PROPOSED BARRIER WALL
PROPOSED RELOCATION OF JOHN KRONK RD
TO WEST DETROIT
6° CURVE
EXISTING ENTRANCE
PROPOSED PROPERTY ACQUISITION OF 2.0 ACRES
MATCH EXISTING
PROPOSED GRADE SEPARATION OF CENTRAL AVE
END OF RETAINING WALL
PROPOSED CUL-DE-SAC
PROPOSED BARRIER WALL
PROPOSED INTERSECTION IMPROVEMENTS
PROPOSED PROPERTY ACQUISITION OF 0.5 ACRES
PROPOSED GATE ENTRANCE/EXIT
12° CURVE
TO TOWNLINE
LEGEND:
MAINLINE
TERMINAL "W1" - GATE 6
TERMINAL "W2" - GATE 4
TERMINAL "E" - GATE 4
PROPOSED INTERNAL ROADS
PROPOSED EXTERNAL ROAD IMPROVEMENTS
EXISTING PROPERTY FOOTPRINT
PROPOSED PROPERTY FOOTPRINT
PROPOSED SECURITY WALL
* Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise with barrier wall for security purposes.
NOTE:
Drawing not endorsed by nor committed to by railroad.
Source: Alfred Benesch & Company
DATE 08/2004
200 0 200 400
Scale in Feet
Figure 4-57
Livernois-Junction Yard Alternative 2
Noise Sensitive Areas


PRELIMINARY DRAWING
RESIDENTIAL AREA*
RESIDENTIAL AREA*
RESIDENTIAL AREA*
RESIDENTIAL AREA*
PROPOSED BARRIER WALL
PROPOSED BARRIER WALL
TERMINAL "A" LEAD TO WEST DETROIT
TERMINAL "B" LEAD TO WEST DETROIT
RELOCATED CP LOU
MICHIGAN AVENUE (US-12)
LIVERNOIS
CLAYTON
CENTRAL
LONYO
DIX
1
2
3
4
5
LEGEND:
PROP. EXTERNAL ROAD IMPROVEMENTS
PROP. REHABILITATED ROAD SEGMENT
MAINLINE
TERMINAL "A" - GATE 1
TERMINAL "B" - GATE 2
TERMINAL "C" - GATE 3
TERMINAL "D" - GATES 4 & 5
TERMINAL "E" - GATE 4
PROP. CENTRAL UNDERPASS
EXISTING RAILROAD PROPERTY
PROP. PROPERTY LINE
PROP. SECURITY WALL
PROP. INTERNAL ROADS
Source: Alfred Benesch & Company
* Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise with barrier wall for security purposes.
NOTE:
Drawing not endorsed by nor committed to by railroad.
DATE:
082004
500 0 500
SCALE IN FEET
Figure 4-58
Livernois-Junction Yard Alternative 3
Noise Sensitive Areas
L:/Projects/2846-A/Graphics/Noise/SensAreas2.cdr


FOR DISCUSSION PURPOSES ONLY
RESIDENTIAL AREA*
RESIDENTIAL AREA*
RESIDENTIAL AREA*
RESIDENTIAL AREA*
PROPOSED BARRIER WALL
PROPOSED BARRIER WALL
MICHIGAN AVENUE (US-12)
LONYO
CENTRAL
LIVERNOIS
DIX
RELOCATED CP LOU
2
3
4
5
LEGEND:
MAINLINE
TERMINAL "B" - GATE (2)
TERMINAL "D1" - GATE (5)
TERMINAL "D2" - GATE (4)
TERMINAL "C" - GATE (3)
TERMINAL "E" - GATE (4)
PROPOSED SECURITY WALL
PROPOSED EXTERNAL ROAD IMPROVEMENTS
PROPOSED INTERNAL ROADS
EXISTING RAILROAD PROPERTY
PROPOSED PROPERTY LINE
Source: Alfred Benesch & Company
* Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise with barrier wall for security purposes.
NOTE:
Drawing not endorsed by nor committed to by railroad.
DATE:
08/2004
500 0 500
SCALE IN FEET
Figure 4-59
Livernois-Junction Yard Alternative 4
Noise Sensitive Areas
L:/Projects/2846-A/Graphics/Noise/SensAreas2.cdr

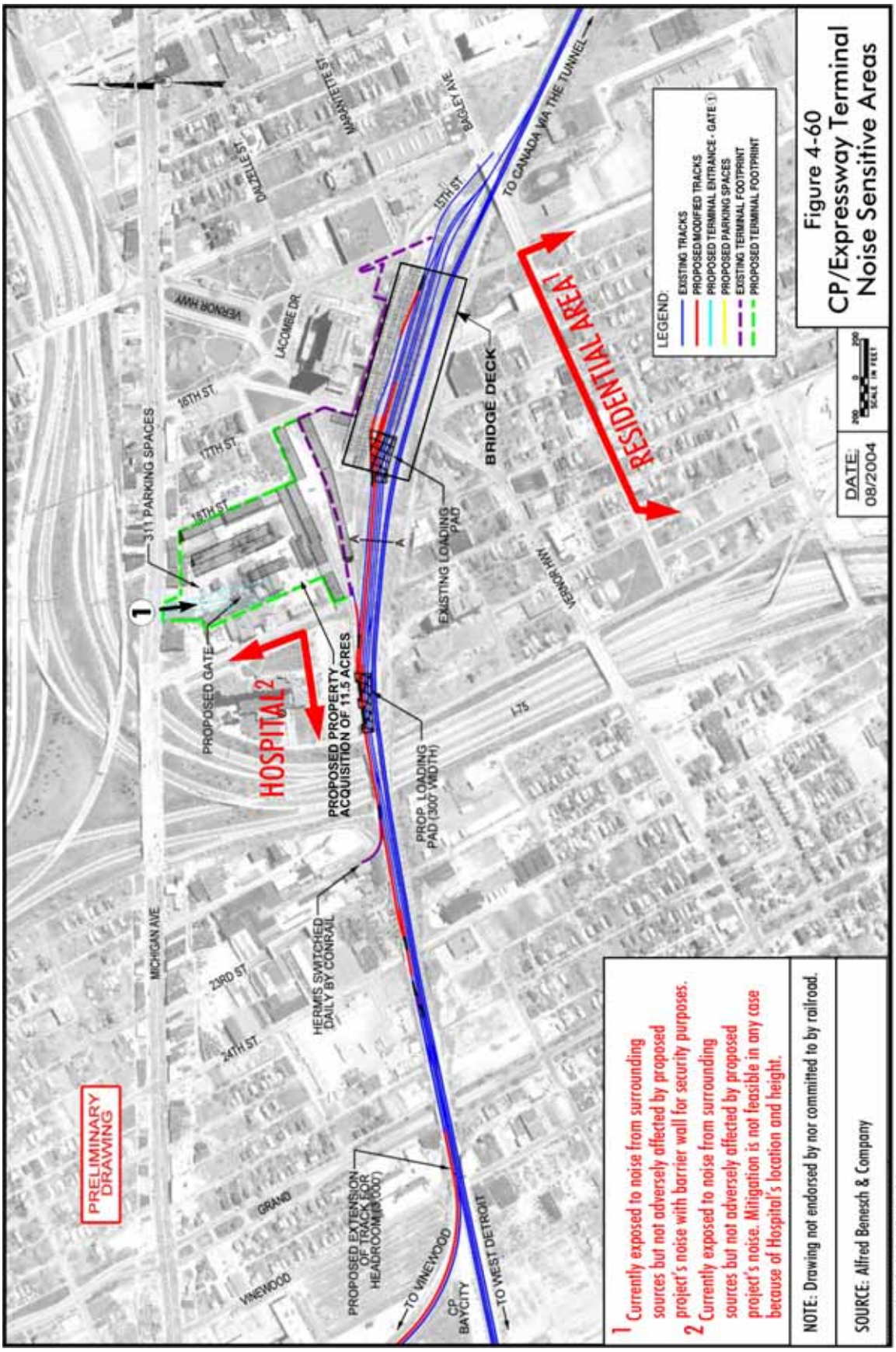


Figure 4-60
CP/Expressway Terminal
Noise Sensitive Areas
LEGEND:
EXISTING TRACKS
PROPOSED MODIFIED TRACKS
PROPOSED TERMINAL ENTRANCE - GATE 1
PROPOSED PARKING SPACES
EXISTING TERMINAL FOOTPRINT
PROPOSED TERMINAL FOOTPRINT
DATE:
08/2004
SCALE IN FEET
RESIDENTIAL AREA 1
HOSPITAL 2
BRIDGE DECK
TO CANADA VIA THE TUNNEL
311 PARKING SPACES
PROPOSED GATE
PROPOSED PROPERTY ACQUISITION OF 11.5 ACRES
EXISTING LOADING PAD
PROP. LOADING PAD (300' WIDTH)
HERMS SWITCHED DAILY BY CONRAIL
PROPOSED EXTENSION OF TRACK FOR HEADROOM (8,000')
TO VINEWOOD
TO WEST DETROIT
CP BAYCITY
MICHIGAN AVE
23RD ST
24TH ST
GRAND
VINEWOOD
VERNOR HWY
LACOMBE DR
16TH ST
17TH ST
18TH ST
15TH ST
DEQUINDRE ST
MARIANNE ST
BAGLEY AVE
I-75
1 Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise with barrier wall for security purposes.
2 Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise. Mitigation is not feasible in any case because of Hospital's location and height.
NOTE: Drawing not endorsed by nor committed to by railroad.
SOURCE: Alfred Benesch & Company
PRELIMINARY DRAWING

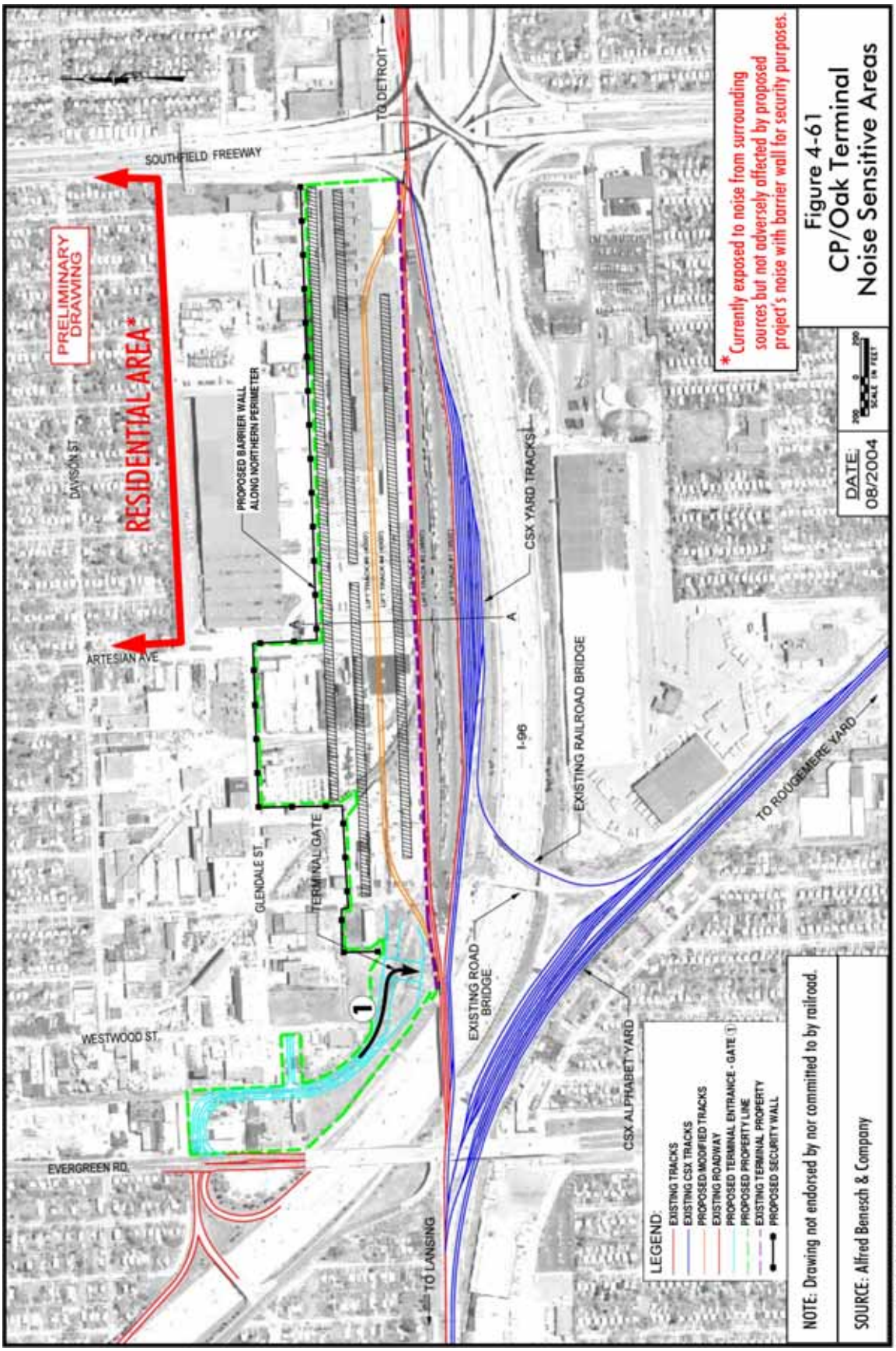

PRELIMINARY DRAWING
RESIDENTIAL AREA*
SOUTHFIELD FREEWAY
TO DETROIT
DAVISON ST
ARTESIAN AVE
PROPOSED BARRIER WALL ALONG NORTHERN PERIMETER
CSX YARD TRACKS
EXISTING RAILROAD BRIDGE
I-96
TO ROUGEMERE YARD
GLENDALE ST.
TERMINAL GATE
1
WESTWOOD ST.
EVERGREEN RD.
EXISTING ROAD BRIDGE
CSX ALPHABET YARD
TO LANSING
LEGEND:
EXISTING TRACKS
EXISTING CSX TRACKS
PROPOSED MODIFIED TRACKS
EXISTING ROADWAY
PROPOSED TERMINAL ENTRANCE - GATE 1
PROPOSED PROPERTY LINE
EXISTING TERMINAL PROPERTY
PROPOSED SECURITY WALL
NOTE: Drawing not endorsed by nor commited to by railroad.
SOURCE: Alfred Benesch & Company
* Currently exposed to noise from surrounding sources but not adversely affected by proposed project's noise with barrier wall for security purposes.
DATE: 08/2004
SCALE IN FEET
Figure 4-61
CP/Oak Terminal
Noise Sensitive Areas

Figure 4-62
CN/Moterm Terminal
Noise Sensitive Areas

At the CP/Expressway terminal, the principal noise sources are I-75, I-96, Michigan Avenue and existing rail operations on the tracks leading to the tunnel to Canada.

At the CP/Oak Yard, the principal noise sources are Evergreen Road, I-96, M-39 (the Southfield Freeway), and industrial machinery and operations north of the intermodal yard.

At the CN/Moterm terminal, the principal noise source is the yard itself, the railroad tracks north and south, and Eight Mile Road. CN Railroad operates under an agreement with the City of Ferndale that restricts the activity type by hours of operation on the yard to reduce noise effects on the neighborhood.

4.9.1 Train Noise

Train noise on rail lines around each of the terminals was estimated based on train type, speed, and throttle position.[43] Focusing on just those project-related, intermodal trains near sensitive areas, the number of trains is forecast to grow from four per day in 2025 under the No Action Scenario to 28 under Alternative 3. The 24-trains-a-day increase amounts to about one train every hour at the Livernois-Junction Yard area under Alternative 3, when all intermodal traffic is consolidated in one location. It is noted that the number of trains increases with lifts. But, in that growth process, trains first get longer as demand grows. Then, when the maximum number of cars per train is reached, demand is met by scheduling a new train.

The largest anticipated train volumes are related not to the proposed action covered in the EIS, but to the potential expansion of Amtrak service and initiation of commuter train operations east-west through the Livernois-Junction Yard. It has been indicated Amtrak will have an increase in operations from three to nine trains daily (equal to an increase from six to 18 passbys, as the trains operate two-way). And, seven commuter rail trains (14 passbys) are projected.[44] These non-project activities (i.e., Amtrak and commuter rail) will increase daily train volumes along Kronk by 32 passbys at relatively high speeds. Because the Amtrak commuter trains serve passengers, they would tend to concentrate during peak travel hours so the hourly train volumes are expected to increase by four.

Under FHWA/MDOT guidance, abatement (mitigation) must be considered when noise levels approach or exceed 67 dBA (decibels acoustic, a weighting of the noise spectrum to match human sensitivity). "Approach" is defined in Michigan as a 1-dBA reduction from the maximum of 67 dBA. So, the effective criterion for consideration of mitigation is 66 dBA during the loudest hour of the day (Table 4-36). Mitigation must also be considered if a project results in a substantial increase (10 dBA or more) in noise levels. All sites have been considered. However, it is generally known that commercial and industrial sites prefer that there be no interference with the view to their establishments. Using the criteria in Table 4-36, abatement has been considered at each sensitive location listed in Table 4-37 for each alternative.

[43] *Transit Noise and Vibration Impact Assessment,* Federal Transit Administration, April 1995.
[44] Projections in Amtrak and commuter rail operations from *Downtown Detroit to Metro Airport,* SEMCOG, 2001.

Table 4-36
FHWA Noise Abatement Criteria (NAC)
(Hourly A-Weighted Sound Level-decibels [dBA])

Activity Category	Description of Activity Category	$L_{eq(h)}$	$L_{10(h)}$
A	Lands on which serenity and quiet are of extraordinary significance and where the preservation of those qualities is essential, if the area is to continue to service its intended purpose.	57 (Exterior)	60 (Exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 (Exterior)	70 (Exterior)
C	Developed lands, properties, or activities not included in Categories A and B above.	72 (Exterior)	75 (Exterior)
D	Undeveloped lands.	--	--
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.	52 (Interior)	55 (Interior)

Note: $L_{eq(h)}$ is used in this analysis.
Source: Based on Table 1 of 23 CFR 772 as found in MDOT's Noise Policy.

Table 4-37
Trains and Noise Levels in Sensitive Areas
(Note: These are not all intermodal train movements.)

Terminal	Livernois-Junction Yard					CP/Expressway Yard [b]					CP/Oak Yard	CN/Moterm Yard [c]				
Sensitive Area	Kronk Street East of Martin[a]					United Community Hospital Area					None	East of Fairgrounds				
	Daily Train Passbys[d]					Daily Train Passbys[d]						Daily Train Passbys[d]				
	Amtrak	Commuter Rail	Conventional Freight	Inter-modal	Total	Amtrak	Commuter Rail	Conventional Freight	Inter-modal	Total		Amtrak	Commuter Rail	Conventional Freight	Inter-modal	Total
2004	6	0	18	4	28	0	0	26	4	30	No receptors	6	0	4	0	10
Alt. 1 2025	18	14	22	4	58	0	0	31	4	35	No receptors	18	0	5	0	23
Alt. 2 2025	18	14	22	4	58	0	0	31	4	35	No receptors	18	0	5	8	31
Alt. 3 2025	18	14	22	20	74	0	0	31	0	31	No receptors	18	0	5	0	23
Alt. 4 2025	18	14	22	12	66	0	0	31	0	31	No receptors	18	0	5	8	31
Pref. 2030	**18**	**14**	**22**	**10**	**64**	0	0	31	0	27	No receptors	18	0	5	8	31
Leq in Loudest Hour @ 100 Feet from Track[e] in dBA – Noise mitigation must be consistent where levels exceed 66 dBA.																
2004	71 dBA					69 dBA					No receptors	61 dBA				
Alt. 1 2025	72 dBA					70 dBA					No receptors	63 dBA				
Alt. 2 2025	72 dBA -Abatement incorporated into terminal design					70 dBA – Mitigation not feasible					No receptors	69 dBA - Abatement incorporated into terminal design				
Alt. 3 2025	74 dBA - Abatement incorporated into terminal design					69 dBA – Mitigation not feasible					No receptors	63 dBA				
Alt. 4 2025	73 dBA - Abatement incorporated into terminal design					69 dBA – Mitigation not feasible					No receptors	63 dBA				
Pref. 2030	**73 dBA-Abatement incorporated into terminal design[f]**					NA					No receptors	63 dBA				
Ldn for 24-hour period – Same mitigation as noted above																
2004	73 dBA					72 dBA					No receptors	63 dBA				
Alt. 1 2025	74 dBA					73 dBA					No receptors	65 dBA				
Alt. 2 2025	74 dBA					73 dBA					No receptors	71 dBA				
Alt. 3 2025	77 dBA					71 dBA					No receptors	65 dBA				
Alt. 4 2025	76 dBA					71 dBA					No receptors	72 dBA				
Pref. 2030	**75 dBA**					NA					No receptors	72 dBA				

[a] This noise sensitive area is at the east end of the Livernois-Junction Yard. Most intermodal trains would not operate in that area.
[b] CP/Expressway intermodal trains come in from Canada and return to Canada via the rail tunnel under the Detroit River and do not progress any further into the U.S. This operation has now ended.
[c] CN intermodal trains come and go from the north and so do not penetrate as far as the Fairgrounds and the residential area to the east today. They would have in the future under Alternatives 2 and 4.
[d] Some trains operate one way through the yard. Others pull in, then back out. For noise purposes the latter is counted as two passbys. Daily trains are listed for purposes of understanding, but the Leq noise calculation is done for the loudest hour.
[e] Leq shown is as estimated for a reference distance of 100 feet. These values are adjusted to determine whether more distant sensitive receptors are exposed to noise levels of 66 dBA or more.
[f] Along Kronk, a 1,700 foot wall 12 feet in height is planned. A reduction of the peak hour noise level of five decibels or more will be experienced by 39 dwelling units.
Source: The Corradino Group of Michigan, Inc.

The noise analysis was performed in terms of MDOT's Noise Policy, recognizing that the DIFT project will include special features to buffer the community from intermodal activity.

Alternative 1 – No Action

Alternative 1 would not have included any mitigation, as this was the No Action condition.

- Livernois-Junction Yard - Five homes have front line exposure along the north side of Kronk between Cabot Street and Trenton Avenue and would experience noise levels in excess of the established FHWA residential criterion. Another 30 homes would experience noises levels in excess of the criterion further east on Kronk between Martin Street and Livernois Avenue (Figure 4-63).

- CP/Expressway Terminal - The sensitive receptors are the United Community Hospital inside the curve of I-75 and residences over a block away from intermodal operations. The Hospital (now closed) receives noise from the intermodal area today above the criterion level and that condition would continue under Alternative 1. Noise levels from the intermodal activity are not above the criterion for the noted residential area.

- CP/Oak Terminal - Residences are over 1000 feet away to the north and do not experience noise levels from the rail terminal in excess of criteria. This would not change under the No Action Alternative.

- CN/Moterm Terminal - A residential neighborhood east of the State Fairgrounds would be exposed to additional train noise under No Action conditions but not at the 66-dBA level (Figure 4-64).

Alternative 2 – Improve/Expand Existing Terminals

Alternative 2 would expand existing terminals. Current exceedances of the noise abatement criterion at the two locations along Kronk at the Livernois-Junction Yard would continue. In the neighborhood east of the State Fairgrounds at the expanded CN/Moterm terminal the noise criterion would be exceeded for the first time. All these locations would be shielded by walls for security that would be designed to mitigate noise a minimum of five decibels, to a point below the residential criterion. These walls are considered part of the alternative's design, notwithstanding the "reasonability" criteria specified in Michigan's Noise Policy. Each terminal is discussed below.

- Livernois-Junction Yard – In the Cabot Street and Trenton Avenue area the fact that there are only five homes with front line noise exposure means that it is not possible to build a noise wall that is "reasonable" per Michigan's Noise Policy. A noise wall has to extend beyond the limits of the residences for some distance in each direction to afford noise abatement. But, as noted, the DIFT has included a wall in its design around the yard for security purposes, so a wall would be constructed at this location as part of the project and is not subject to the normal "reasonable" test as it serves security and buffering functions.

  Along the north side of Kronk, between Martin Street and Livernois Avenue, more than 20 homes have front-line exposure to noise from the Livernois-Junction Yard and almost 40 would have line-of-sight exposure to the rail activity. These single-family homes would experience at least a five-decibel decrease in noise levels with a wall 12 feet high that is part of the terminal's design (Figure 4-63). The wall would be positioned between the edge of the rail yard and John Kronk. If this section of the wall that affords noise abatement to this residential area were evaluated with respect to Michigan's Noise

Figure 4-63a
Sensitive Noise Receptors
North Side of Kronk
Livernois-Junction Yard
Numbers indicate noise sensitive receptors.
NOTE: This graphic shows Alternatives 2, 3 & 4.
SOURCE: The Corradino Group of Michigan, Inc.
LIVERNOIS
GILBERT
CICOTTE
OTIS
CLIPPERT
MARTIN
JOHN KRONK
Barrier Wall
AREA OF DETAIL

Figure 4-63b
Sensitive Noise Receptors
North Side of Kronk
Livernois-Junction Yard
Numbers indicate noise sensitive receptors.
TRENTON
LAWNDALE
CABOT
JOHN KRONK
Barrier Wall
AREA OF DETAIL
NOTE: This graphic shows Alternative 2. Under Alternatives 3 and 4 these homes would be removed and the buffer protecting the community will be further north
SOURCE: The Corradino Group of Michigan, Inc.

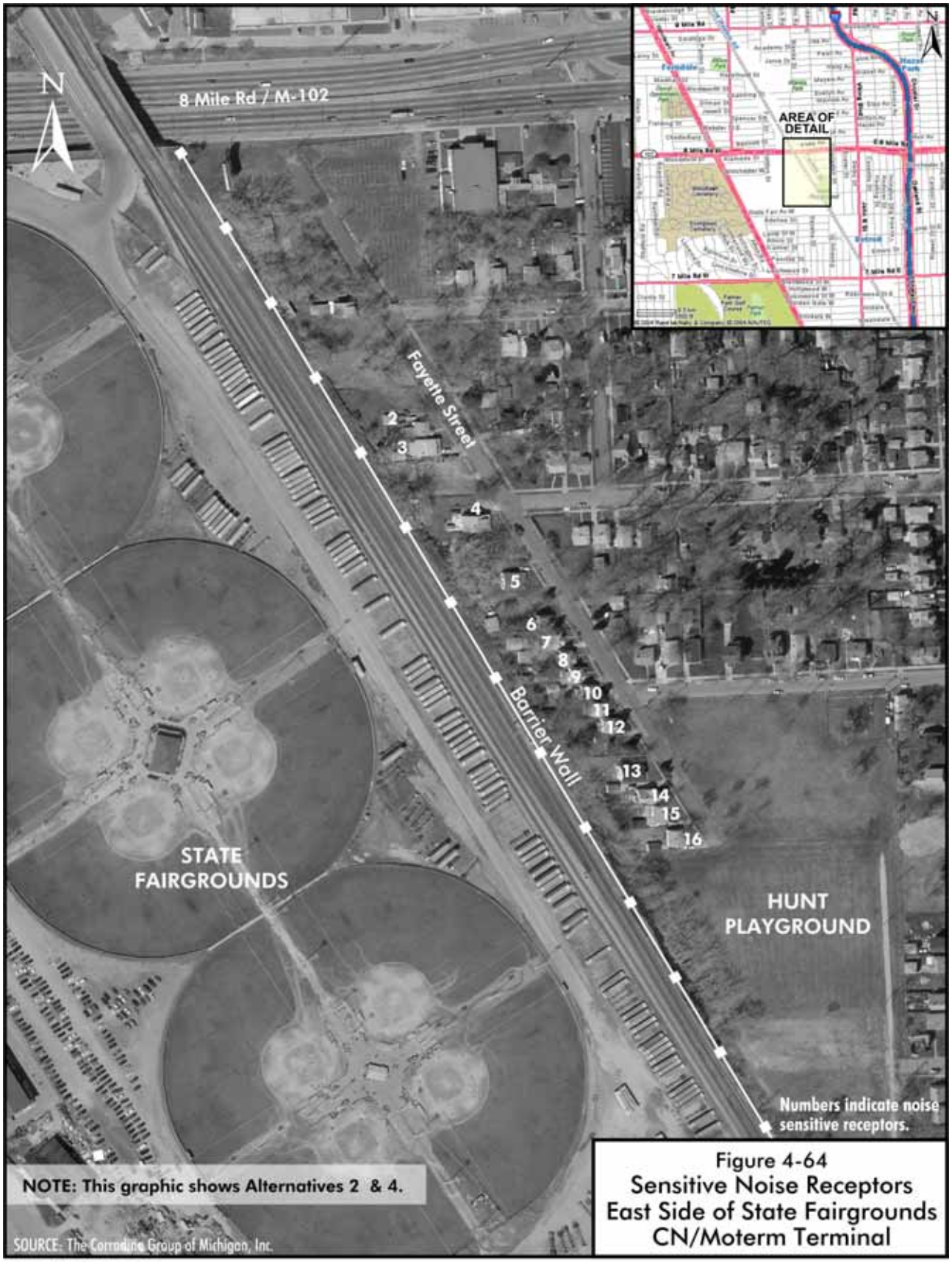


Figure 4-64
Sensitive Noise Receptors
East Side of State Fairgrounds
CN/Moterm Terminal

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Policy, it would be considered reasonable because the cost per dwelling unit is estimated to be $24,000, compared to the criterion $36,907 (2006 dollars).

- CP/Expressway Terminal – Alternative 2 called for terminal expansion east of I-75 and south of Michigan Avenue. The United Community Hospital was located inside the curve of I-75. Noise mitigation is not feasible at this location because the hospital is multi-story and immediately adjacent to I-75 and Michigan Avenue both of which contribute noise to the hospital site greater than the expected intermodal rail noise. The residential area, more than a block south of the terminal, would not have been adversely affected by noise levels from intermodal activity.

- CP/Oak Terminal – Alternative 2 called for intermodal terminal expansion to the north. There are no sensitive receptors within 1000 feet of the terminal. Nonetheless, a wall would have been created along the northern edge of the property for security purposes, if the terminal had been expanded.

- CN/Moterm Terminal – Alternative 2 called for terminal expansion in the east section of the Michigan State Fairgrounds. Across the railroad tracks to the east of the Fairgrounds, seventeen homes along Fayette Street have direct exposure to the existing rail line and its associated activity. (Note that no intermodal trains operate today in the Fayette Street area as the trains pull into the Moterm terminal from the north and exit to the north.) The increase in train activity with intermodal expansion into the Fairgrounds would have been two trains a day over No Action conditions with one train in the loudest hour. Due to the low level of existing train activity along this track section, the intermodal trains would increase the overall noise level to the point that the residential noise criterion would be exceeded. The cost of a wall that is 1,600 feet long at this location is estimated to be $900,000 or $56,000 per dwelling unit. This does not meet the Noise Policy criterion. However, as with other locations, a wall was to be included in the project's design for security purposes, if the terminal had been expanded (refer to Figure 4-64). The wall would be built as described above so that the noise criterion is no longer exceeded.

Alternative 2 would have reduced rail noise except for one location where horn blowing would have increased. Horn blowing at rail crossings of roads is generally considered to be the most intrusive noise. Trains serving the CN/Moterm terminal presently use their horns in the area of Nine Mile Road and Hilton Road. There, intermodal trains would have increased from one to four movements daily (as total trains increase from 11 to 27), if the CN/Moterm terminal had been expanded (Alternatives 2 and 4).

On the other hand, at the Livernois-Junction Yard horn use will cease. Trains use their horns at Lonyo Avenue and Central Avenue today. There will be no need for horn use there under any of the Action Alternatives (Alternatives 2, 3, and 4) as Lonyo would be closed and Central would be reconstructed to pass under the rail yard.

Alternative 3 would have expanded the Livernois-Junction Yard area. There would be increased intermodal traffic, but property acquisition in the area would have removed a number of homes, and a wall was planned along the north side of the expanded rail yard for security purposes. It would have protected from noise the remaining homes in the Cabot/Trenton area and the Martin/Livernois area. If this section of the wall that affords noise abatement to the Martin to Livernois Avenue residential area was evaluated with respect to Michigan's Noise Policy, it would have qualified for noise mitigation funding. Horn blowing at Lonyo and Central Avenues would have ceased.

Alternative 4 would likewise have had impacts that would have been mitigated along east Kronk, plus impacts to the area east of Fairgrounds, as noted in Alternative 2. Horn blowing at Lonyo and Central Avenues would have ceased.

4.9.2 Roadway Noise

As a rule, doubling the energy of sound (twice as much traffic, half as much distance) results in about a 3 dBA sound level increase, a level undetectable by most people unless they are in a controlled laboratory setting. Thus, noticeable noise impacts typically result only when the road is moved much closer to sensitive receptors.

Under the No Action Alternative (Alternative 1) background traffic was assumed to grow at one percent a year and there would have been no mitigation. Under all Action Alternatives, roadway noise would not have increased perceptibly (no more than 3 dBA). The DIFT project will focus new truck traffic along designated travel paths, notably on Wyoming Avenue and Livernois Avenue and away from sensitive receptors.

The DIFT traffic analysis determined the existing auto and truck volumes on the local street networks around each of the terminals. Then, new traffic related to the DIFT project under each alternative was added, based on proposed terminal gate locations and access routings. Traffic related to properties that would be acquired for the project was removed from the network. The net volume change on each roadway link was then estimated for each alternative. The change in auto and truck traffic allowed an estimate of the change in noise level.

Perceptible noise level reductions are expected at several residential locations, resulting from reduced truck traffic (Figure 4-65), most notably:

- Livernois-Junction Yard – Livernois Avenue and Dragoon Street south of Dix to I-75 (Alternatives 3 and 4).
- CP/Oak Terminal (Alternatives 2, 3 and 4) – Artesian Street.
- CN/Moterm Terminal (Alternatives 2, 3, and 4) – Fair Street and Chesterfield Street north of Eight Mile Road.

4.9.3 Vibrations

Detectable vibrations are normal where trains and trucks are active. During the feasibility study for the DIFT project, vibration levels were measured at four locations in the vicinity of the Livernois-Junction Yard (Figure 4-66): 1) Beard Elementary School at 1551 Beard Street (along the rail line from the east yard area to the Springwells/I-75 area); 2) the Bill Ford Family Services and Learning Center, 3401 Schaefer Road; 3) a vacant lot on Porath Court near Wyoming Avenue (next to the I-94 off-ramp); and, 4) a vacant lot at 3321 Clippert Street at John Kronk, approximately three blocks west of Livernois and north of John Kronk (Figure 4-66). At the first location train passbys were measured, at the second trucks, at the third trucks, and at the fourth trucks and trains. Although the measurements detected vibration levels perceptible to humans, the annoyance level[45] was reached only at the Beard School. However, vibrations at annoyance levels were noted at the school in the absence of trains as well as when a locomotive passes by. It is expected there will be 12 more intermodal train passbys per day, maximum, in 2025 between No Action and the busiest Action Alternative. Today there are about 15 passby trains during the

[45] The "Annoyance Level" is based on a rating curve which is four times higher than the base human perception rating curve consistent with procedures of the American National Standard Institute (ANSI) S3.29-1983, reaffirmed in 1996.

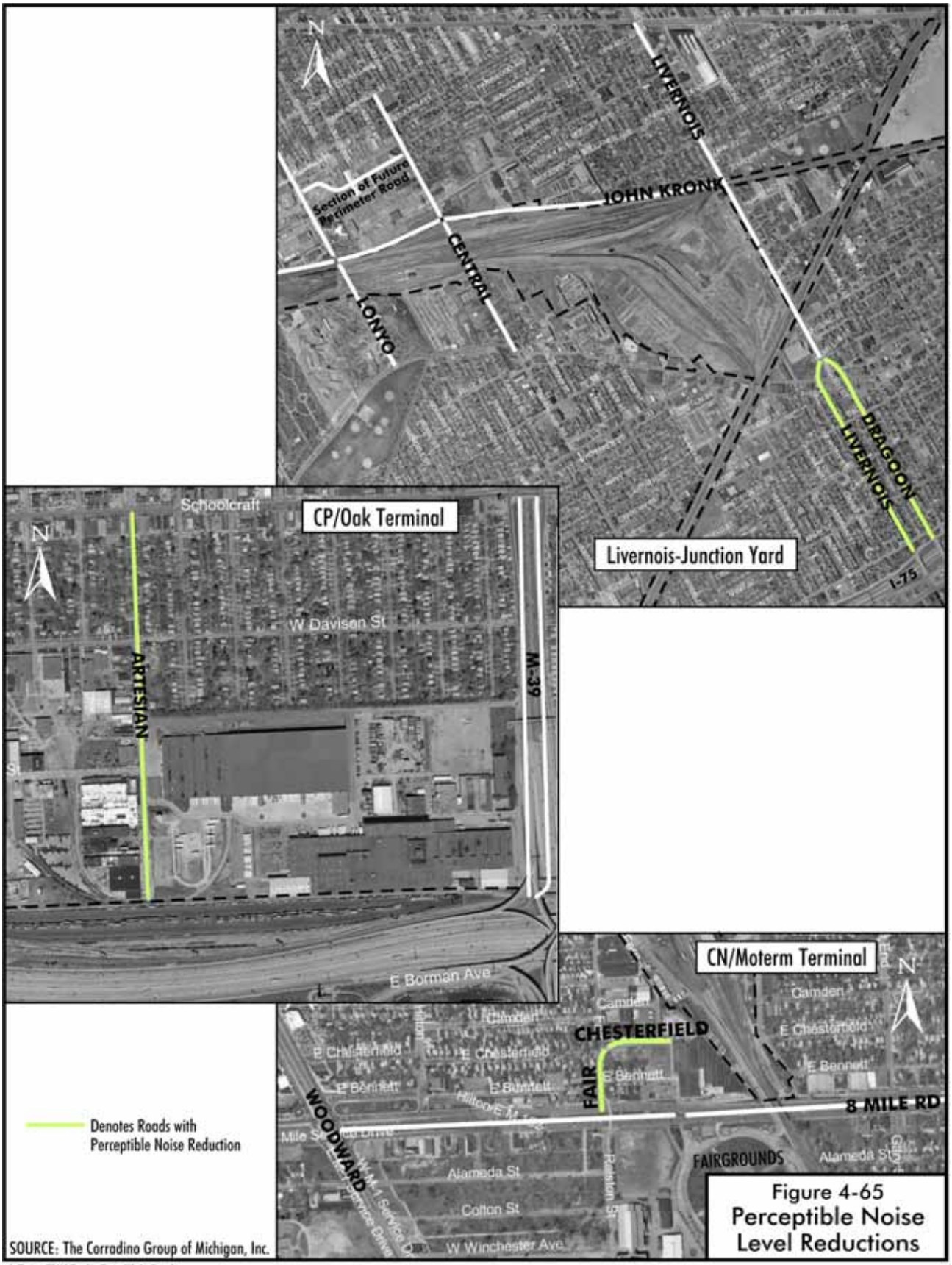

Figure 4-65
Perceptible Noise Level Reductions

L:/Projects/28466A/Graphics/Enviro/ViberAnnlLoc.cdr

Figure 4-66
Vibration Analysis
Locations
1 = Beard Elementary School
1551 Beard Street
2 = Bill Ford Center
3401 Schaefer Road
3 = Porath Court near Wyoming
at I-94 ramp
4 = Vacant lot north of Kronk
3321 Clifford
N
SOURCE: The Corradino Group of Michigan, Inc.
Scotten
Junction
Military
Junction
Livernois
John Kronk
I-94
Michigan
Livernois
I-75
Central
Dix
Vernor
Dix
Lonyo
McGraw
John Kronk
Wyoming
Wyoming
M-153 Ford
I-94
Michigan

school day. This increase relating to intermodal growth would amount to less than one additional locomotive passby per hour during the school day in 2025 based on the data in Table 4-37.

The above vibration measurement locations represent "worst case" conditions for all locations under any alternative. No vibration mitigation is proposed for any Action Alternative.

At the CP/Expressway, CP/Oak and CN/Moterm terminals, train and truck passbys occur in a manner similar to the Livernois-Junction Yard, except that they are less frequent. At all sites there are multiple sources of vibration from non-intermodal truck or rail traffic, such as industrial processes, heating and air conditioning units, transformers, and a variety of other indoor and outdoor sources. The vibrations due to intermodal activity are detectable but not intrusive in these environments.

Preferred Alternative – Noise and Vibrations

The Preferred Alternative will include security walls along the north and south sides of the Livernois-Junction Yard, where residential uses are adjacent that will mitigate noise levels at a set of sensitive receptors by five dBA, consistent with walls considered for all Action Alternatives. Along the north side of the yard, along Kronk Street, where the active tracks are relatively close to homes, the intermodal train increase is estimated to be from four in 2004 to ten in 2030. At this location, the security wall will need to be 1,700 feet long and 12 feet high. Such a wall will reduce noise levels by at least five decibels at 39 dwelling units.

Rail horn use would cease at Lonyo and Central as the former would be closed and the latter would pass under the rail yard. Perceptible noise level reductions will occur on Livernois Avenue and Dragoon Street south of Dix to I-75 due to reduced truck traffic there.

The conclusions related to vibrations with the Preferred Alternative are the same as with the Action Alternatives. There could be perceptible vibrations at the Beard School less frequently than once per hour during the school day (ten new intermodal trains with the Preferred Alternative in 2030 versus 12 with Alternative 3 in 2025). No mitigation is proposed because vibrations occur in the absence of intermodal train activity.

4.10 Threatened and Endangered Species

Threatened and endangered species are officially protected in Michigan by both federal and state Endangered Species Acts: Public Act 451, Part 365 and Act 203 of the Public Acts of 1974, respectively. An endangered species (E) under the acts is defined as in danger of extinction throughout all or a significant portion of its range. A threatened species (T) under the acts is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Special concern species (SC) are not afforded legal protection under the acts, although MDOT treats them as listed species due to their declining populations. Extensive efforts are made to avoid and minimize impacts to these species, and their habitats, in an effort to help them from becoming listed in the future. They are species with declining or relict populations in Michigan or are species for which more information is needed.

There will be no effect on threatened, endangered and special concern species at any of the terminals under any Action Alternative. According to the MDNR, Wildlife Division: a) at the Livernois-Junction Yard area, there are no known occurrences of federal- or state-listed endangered, threatened, or otherwise significant species, natural plant communities, or natural features (see letter dated September 13, 2002, Appendix A, Section 2); and, b) at the CP/Expressway, CP/Oak and CN/Moterm areas, the project should have no impact on rare or natural features (see letter dated September 19, 2003, Appendix A, Section 2).

Preferred Alternative

Conclusions related to threatened, endangered and special concern species have not changed from the DEIS. The Preferred Alternative will have no effect on these species.

A snail called the heath helicellid, Xerolenta (=Helicella) obvia, has been found in the Detroit area associated with railroad yards, including the Tri-modal facility on Dix and within the Livernois-Junction Yard. It has been considered an agricultural pest in Europe especially of grains. It could become a pest in Michigan. Attempts are underway to eradicate the populations found so far. Property owners will need to be aware of this potential pest during DIFT project development.

4.11 Waterways/Water Quality/Floodplains/Coastal Resources

4.11.1 Waterways

No waterways or waterbodies including lakes, ponds, perennial streams, and intermittent streams would be affected by any alternative.

Preferred Alternative

No waterways or waterbodies including lakes, ponds, perennial streams, and intermittent streams would be affected by the Preferred Alternative. There would be no effects on coastal zone resources.

4.11.2 Water Quality

All of the Action Alternatives would have had minimal impacts on the quality of surface or groundwater, or the level of the groundwater table. There are no floodplains at any of the sites. No physical disturbance of stream and riparian vegetation would occur, as there is no open water or waterway at any of the sites. All of the sites are located in developed urban areas. In the future, surface runoff from all of the sites would have continued to flow to the combined sewer system. Because the unpaved portions of existing terminals would have remained unpaved under Alternative 1 – No Action, the amount of runoff for Alternatives 2, 3 and 4 would be greater than Alternative 1. That terminal runoff (including that for newly paved surfaces) would have been directed to an engineered on-site collection system first, using oversized pipes and swales to ensure future flow rates were not increased. Because of the combined sewer system, all water would have been treated before it flowed to the Detroit River. ***The Detroit Water and Sewer Department has developed a Combined Sewer Overflow (CSO) screening and disinfection facility, Baby Creek, just south of the DIFT project. Another CSO is planned for the area between Jefferson Avenue and the Detroit River northeast of Fort Wayne.***

The railroads, like many other industries, are required by the federal government to have pollution prevention plans to prevent impacts to stormwater, surface water and groundwater. These plans include, among other things, provisions requiring spill prevention, response, training and reporting.

Groundwater is present in the glacial drift and underlying sedimentary bedrock formations. The regional geology consists of surficial lacustrine clay and silt deposits underlain by limestone, shale and sandstone beds of Ordovician to Pennsylvania age. The glacial drift in Wayne County ranges from a few feet to as much as 330 feet. These deposits are thinnest near the mouth of the

Detroit River and thicken toward the west and northwest. Most of Detroit sits on an ancient glacial, clay plain lake bed and salt mines.

The quality of groundwater is highly mineralized. There are no known potable water wells, including public water supply wells in the vicinities of the terminals. The water supply for Detroit is Lake St. Clair. None of the terminals are located in wellhead protection areas.

Because of the underlying clays and the proposed stormwater collection/storage system, infiltration to groundwater was expected to be insignificant for any Action Alternative.

Preferred Alternative

Conclusions related to water quality do not change but options have been developed to deal with the increased volume of surface runoff that will result from the increased proportion of the Livernois-Junction Yard that is paved. The Preferred Alternative's increased surface runoff will be directed to an engineered on-site collection system to ensure that future flow rates leaving the site do not increase. The flow will be subject to NPDES permitting. The DIFT improvements on the yard will be designed and constructed by the railroads. The railroads will apply for the NPDES permits. Requirements of the permits are not known at this time. Whether any treatment will be required is not known. Stormwater will flow: 1) to the local combined sewer system and thence Detroit's Wastewater Treatment Plant; or, 2) directly to the Rouge River via new stormwater pipes constructed within railroad right-of-way. Under the second option, the stormwater would not pass through the wastewater treatment plant and fees to the Detroit Water and Sewer Department required under the first option would be avoided. Planning to-date calls for detention on site in pipes. Under severe storms, minor ponding around catch basins would add to the stormwater detention storage. The yard is relatively impervious today (gravel and packed earth). The surface area subject to a decrease in permeability is approximately 362 acres. The additional runoff to be detained would be 8.14 acre-feet from a ten-year storm event.

Paving the yard will result in significantly less erosion and silt carried to local roads which now clog the local storm drainage system. Likewise, reduction in dirt carried to local roads by vehicle tires and/or blown there will benefit water (and air) quality.

4.11.3 Floodways and Floodplains

Floodplain analysis must be performed consistent with 23 CFR 650 and Executive Order 11998. The analysis must examine whether a project creates or increases a hazard to people and/or property, and whether there is an impact on natural and beneficial floodplain values. These values include: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

There are no waterways (streams/surface drains) in the areas of the Action Alternatives. The project areas are drained by combined sanitary/storm sewers.

There will be no encroachment on any regulatory floodway (the main channel that carries water) or floodplain (the area into which water extends during periods of flooding) in any alternative. No significant hazard to people or property will result from the project. There will be no effects to the 100-year floodplain. The Action Alternatives will not result in a loss in natural and beneficial floodplain values.

4.11.4 Coastal Resources

The Preferred Alternative is outside Michigan's Coastal Zone and will have no effect on resources therein. Likewise, it is not subject to the Great Lakes Coastal Barrier Act. There will be no effect on any coastal barrier, critical dunes, or high risk erosion areas.

Preferred Alternative

Conclusions related to floodways and floodplains do not change; the Preferred Alternative will not affect floodways or floodplains.

4.12 Wetlands

Fieldwork to identify wetlands was performed consistent with state and federal guidance at the intermodal terminals in the spring of 2002, the spring and summer of 2003, and the summer of 2004. State and federal laws and regulations (Federal Executive Order 11990 and Part 303 of Michigan Public Act 451 of 1994) protect wetlands and require that: 1) they be avoided to the extent feasible and prudent; 2) if unavoidable, impacts be minimized; and, 3) mitigation be provided in the form of wetland replacement, generally as close as possible to, and in the same watershed as, the impact area.

The US Geologic Service (USGS) topographic maps of the sites revealed flat topography substantially altered by industrial and commercial development. Site visits confirmed that there is no undeveloped land on any of the parcels. Vegetated surfaces are mainly road medians, lawns, and parks. The National Wetland Inventory (NWI) maps of the sites indicated that no wetlands occurred on or adjacent to any site. The *Soil Survey of Wayne County, Michigan* is not a complete survey of all areas of Wayne County. The National Resource Conservation Service (NRCS) did not map areas that had been fully developed prior to the time the original survey was conducted. The areas were not surveyed and not included in the mapped soil units for this section of Detroit because the areas have been urbanized for several decades, with considerable disturbance to natural soils.

4.12.1 Alternative 1: No Action

Under the No Action Alternative there would have been no effect on wetlands.

4.12.2 Alternative 2: Improve/Expand Existing Terminals

Livernois-Junction Yard

One wetland (Palustrine Emergent) was identified within the area of investigation. This area is located in the southeast corner of a railroad overpass crossing Central Avenue. It is approximately 20 x 20 feet (400 square feet or less than 0.01 acre) and predominantly consists of willow (Salix spp.) and common reed (*Phragmites australis*). Wetland hydrology was evidenced by water seeping out of the coarse gravel railroad ballast and fill that forms the foundation of the overpass on the east side of Central Avenue. This water apparently seeps down from the railroad and collects in a flat area next to a used auto parts business. The drainage pattern appears to direct water from the flat wetland area to the sidewalk on the east side of Central Avenue and north to the lowest point of the street under the viaduct.

This small area is located in a highly urbanized setting, next to a busy street and wedged between the railroad track and the salvage yard. Because it is flat, it appears to have minimal stormwater storage capacity. Because it is next to an auto salvage yard, its function as a filter is questionable

as wetland drainage water may well take up chemicals seeping from the salvage yard prior to overflowing onto the sidewalk and draining into the street. The patch is quite small so that its wildlife value is judged non-existent. The plant species (common reed [Phragmites australis] and willow [Salix spp.]) are not particularly useful to wildlife as food sources and they are not thick enough to provide much cover. In summary, this is a very small, marginal wetland of minor environmental significance. MDOT, through a cooperative agreement with MDEQ, will build or restore compensatory mitigation for unavoidable wetland impacts using a "Moment of Opportunity" site allowed under the General Permit Category of Part 303 of P.A. 451 (1994, as amended).

CP/Expressway Terminal

Field investigation revealed no wetlands in this highly urbanized area. Vegetated areas consisted of turfgrass (*Poa spp*.) with weedy species such as common plantain (*Plantago major*), and dandelion (*Taraxacum officinale*). A small patch of common reed (*Phragmites australis*) was found growing out of a crack where the vertical wall of a viaduct intersects with street pavement on the northeast side of the 20th Street viaduct. This area apparently receives water draining from the railroad ballast on top of the viaduct, down to the crack along the street where it temporarily pools around a pile of discarded tires stacked against a chain-link fence. This area, approximately ten square feet in total area, is not considered a wetland.

CP/Oak Terminal

Examination of the site aerial photograph indicated one area that might be capable of supporting wetlands, an abandoned field located in the northeast corner of the I-96/Evergreen Road interchange. Field investigation revealed no wetlands in this area, only old-field vegetation and some small elm (*Ulmus americana*) and box elder (*Acer negundo*) trees. Notable wildlife observed during the site visit included two American woodcocks (*Scolofax minor*), several eastern cottontail rabbits (*Sylvilagus floridanus*), and a Ring-necked pheasant (*Phasianus colchicus*). Field investigation also revealed some vegetation in a low area of 200-300 sq. ft. extent alongside the ballast of an abandoned railroad spur in this area. But the soils and hydrology in this area do not support determination that it is a wetland.

CN/Moterm Terminal

At the south end of the Fairgrounds near the railroad tracks is a 3,200-square-foot (0.07-acre) low quality Palustrine Emergent wetland created by earth stockpiling. It supports 13 wetland plant species. The area contains piles of soil, concrete and asphalt. This site, like the site at the Livernois-Junction Yard, would also have been mitigated through the "Moment of Opportunity" process.

4.12.3 Alternative 3: Consolidate All Four Class I Railroads' Intermodal Activity at Livernois-Junction Yard Area

The conditions of Alternative 2 for the Livernois-Junction Yard, presented above, applied here.

4.12.4 Alternative 4: The Composite Option

The conditions of Alternative 2 for the Livernois-Junction Yard and the CN/Moterm terminal, presented above, applied here.

Preferred Alternative

The 400 square foot (less than 0.01 acre) Palustrine Emergent wetland identified at the southeast corner of Central Avenue and the railroad overpass, at the south limit of the current yard, will be lost under the Preferred Alternative. MDOT, through a cooperative agreement with MDEQ, will build or restore compensatory mitigation for unavoidable wetland impacts using a "Moment of Opportunity" site allowed under the General Permit Category of Part 303 of P.A. 451 (1994, as amended).

The project is in compliance with Executive Order 11990, "Protection of Wetlands." It has been determined that there is no practicable alternative to the proposed action, and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

4.13 Historic and Archaeological Resources

The *National Register of Historic Places* has established criteria for determining a property's historic significance. These criteria require a property to have integrity of location, design, setting, materials, workmanship, feeling, and association. Additionally, the property typically has to be 50 years old or older, and meet one or more of the following: Criterion A) be associated with a significant event; Criterion B) be associated with the lives of significant persons; Criterion C) embody the distinctive characteristics of a type, period or method of construction, or represent the work of a master; or, Criterion D) have yielded or may be likely to yield information important in history or prehistory (usually archaeological sites).

To satisfy Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act, MDOT contacted the Michigan State Historic Preservation Office (SHPO) for help in identifying project area historic and archaeological sites. The SHPO recommended that MDOT conduct historic and archaeological surveys to locate sites eligible for listing on the *National Register of Historic Places*. The FHWA and MDOT began cultural resource surveys by delineating an Area of Potential Effect (APE) for the project. The APE represents the maximum area potentially affected, both directly and indirectly, by the project and is approved at the outset of the analysis by the State Historic Preservation Office (SHPO). The SHPO agreed the APE would extend 300 feet beyond the existing rail yards and the proposed expansions for above-ground resources.

Surveys of historic and archaeological resources took place within the APE in 2002, 2003 and 2004. The survey results, project impacts, and mitigation measures are described in separate reports.[46]

[46] "Archaeological Literature Search and Field Review of the Detroit Intermodal Freight Terminal (DIFT) Project Detroit and Dearborn, Michigan", Commonwealth Cultural Resources Group, November 2002; "Assessment of Archaeological Sensitivity for the Proposed CP/Oak - Detroit Intermodal Freight Terminal City of Detroit, Wayne County, Michigan", Commonwealth Cultural Resources Group, April 2003; "Above-ground Resources Assessment for the Proposed CP/Oak - Detroit Intermodal Freight Terminal City of Detroit, Wayne County, Michigan", Commonwealth Cultural Resources Group, May 2003; "Assessment of Archaeological Sensitivity for the Proposed CP/Expressway - Detroit Intermodal Freight Terminal City of Detroit, Wayne County, Michigan", Commonwealth Cultural Resources Group, June 2003; "Above-ground Resources Assessment for the Proposed CP/Expressway - Detroit Intermodal Freight Terminal City of Detroit, Wayne County, Michigan", Commonwealth Cultural Resources Group, June 2003; "Assessment of Archaeological Sensitivity for the Proposed CN/Moterm - Detroit Intermodal Freight Terminal City of Ferndale, Oakland County, Michigan", Commonwealth Cultural Resources Group, August 2003; "Assessment of Archaeological Sensitivity for the Proposed CSX Livernois - Detroit Intermodal Freight Terminal Cities of Detroit and Dearborn, Wayne County, Michigan", Commonwealth Cultural Resources Group, September 2003; "Above-ground Resources Survey of the Michigan State Fair Property - Detroit Intermodal Freight Terminal Project City of Detroit, Wayne County, Michigan", Commonwealth Cultural Resources Group, February 2004; "Above-ground Resources Assessment for the Proposed CSX-Livernois-Detroit Intermodal Freight Terminal Cities of Detroit and Dearborn, Michigan," Commonwealth Cultural Resources Group, May 2004.

Each of the Action Alternatives would have had an "adverse effect" on above-ground cultural resources. In making this determination, the criteria of adverse effect, as listed in Section 106 of the National Historic Preservation Act were applied. A project results in an adverse effect on an historic property when it diminishes those characteristics that make it historically significant. Activities that may result in an adverse effect include demolition, landscape changes, isolation of a property from its setting, and the introduction of visual, audible or atmospheric elements out of keeping with the character of the property.

Adverse effects on historic resources are avoided when prudent and feasible. When it is not prudent and feasible to avoid adverse effects, they are minimized. Because the Action Alternatives would have adversely affected an historic property, mitigation measures would have been developed if any of these alternatives had advanced after the public hearing. ***The Preferred Alternative has adverse effects. So, measures have been developed in consultation with the SHPO, the community, and the Advisory Council on Historic Preservation in Washington, D.C.*** That information is presented in Section 6 of this document, which covers impacts to Section 4(f) properties.

Research and field review found no known National Register eligible archaeological resources at any intermodal terminal for any alternative. However, at the time of the DEIS, the SHPO agreed with the assessment that field investigations at two archaeological sites at the Livernois-Junction Yard should be conducted to determine whether archaeological deposits exist prior to any construction (see letter dated November 22, 2004 in Appendix A, Section 2). ***Subsequently, it was determined that the Preferred Alternative would avoid the Jacques Baby Mill site and that recent construction activities by the railroad in the vicinity of the Michigan Central Stockyard Hotel site has likely further buried the site under fill. Ground disturbing activities will not be conducted in this area.***

4.13.1 Alternative 1: No Action

Under the No Action Alternative, there would have been no government-sponsored effect on any above-ground historical resources or on any archaeological resources.

4.13.2 Alternative 2: Improve/Expand Existing Terminals

Livernois-Junction Yard

Implementation of Alternative 2 at the Livernois-Junction Yard would not have had an adverse effect upon National Register-eligible or listed above ground resources.

An archaeological survey was performed. The impact of urban and industrial development over the past century has fundamentally reduced the potential for archaeological site survival. This is especially evident in the destruction of the natural drainageways that previously laced the project area. Cut-and-fill operations along the creek margins, combined with the opening of brickyard clay pits, have had a catastrophic impact on the integrity and continued survival of any archaeological sites associated with the DIFT project expansion/acquisition parcels.

CP/Expressway Terminal

A reconnaissance-level survey of the APE found one structure, one building, and one district that are recommended eligible for the National Register (Table 4-38 and Figure 4-67). One of these three that would have been adversely affected by Alternative 2 is discussed next. The State Historic Preservation Office (SHPO) has concurred with the eligibility and effect determinations for the CP/Expressway terminal (see letter in Appendix A, Section 2 dated October 18, 2004).

Table 4-38
Summary of Project Effects on Potential *National Register* Eligible Cultural Resources

Alt.	Terminal	ID No. on Figure 1-16	Site Name	Location	Description	Effect
2	CP/ Expressway	1	Michigan Central Railroad Passenger Station and Bridge Deck	West Vernor Highway	Railroad station and bridge decks, circa 1905-1915	Proposed/modified tracks on bridge deck. Adverse effect.
2	CP/ Expressway	2	Roosevelt Park Annex	Maranette St. and 14th St.	Post Office PWA Moderne, circa 1935	No property to be taken. No adverse effect.
2	CP/ Expressway	3	St. Paul's German Evangelical Lutheran Church district	17th and Rose Street	Gothic Revival and Italianate church, school, and residence, circa 1892	No property to be taken. No adverse effect.
2/4	CN/ Moterm	4	Exhibition Building Historic District	Michigan State Fairgrounds	Dairy Cattle Building, Coliseum, Agriculture Building, Poultry Building, and Whitehall	No property to be taken. No adverse effect.
2/4	CN/ Moterm	5	Band Shell	Michigan State Fairgrounds	Outdoor proscenium stage, circa 1938	No property to be taken. No adverse effect.
2/4	CN/ Moterm	6	Grant House	Michigan State Fairgrounds	Balloon-framed house associated with Ulysses S. Grant, circa pre-1850	No property to be taken. No adverse effect.
2/4	CN/ Moterm	7	Garland Stove	Michigan State Fairgrounds	Large wood carved stove for commercial advertising art, circa late 1800s	No property to be taken. No adverse effect.
3/4 **Pref.**	Liv-Jct	8	Michigan Box Company/ Spranger Wire Wheel Company	7175 Clayton Street	Factory originally built to make auto parts. Now pallets are made at the site.	Right-of-way needed for Alternatives 3 and 4 and **Preferred Alternative** would require demolition of this building. Adverse effect. MOA required.
3/4	Liv-Jct	9	Rickenbacker Motor Company/Springfield Body Corporation	4815 Cabot	Former factory that produced automobiles	Alternative 3 would require a portion of the factory that is not eligible. Alternative 4 and ***Preferred Alternative would require land south of the buildings but no parts of the building. No adverse effect.***
3/4	Liv-Jct	10	Frederick Wolf and Sons historic homes	West side of Central near St. John St.	Three 1890s Queen Ann homes (one is outside APE)	No property to be taken. No adverse effect.
3/4 **Pref.**	Liv-Jct	11	House	6332 John Kronk	Historic home	No property to be taken. SHPO will review **Preferred Alternative** security wall design.
3/4	Liv-Jct	12	Tomms House	3434 Martin Street	Historic home	No property to be taken. Adverse effect under Alternative 3.
3/4	Liv-Jct	13	Markey House	3504 Martin Street	Historic home	No property to be taken. Adverse effect under Alternative 3.
3	Liv-Jct	14	Federal Screw Works Factory	3301-3401 Martin Street	Former factory that produced fasteners for the auto industry.	Area needed for Alternative 3 would require this property. Adverse effect.
3/4	Liv-Jct	15	Livernois Avenue Art Deco Bridge	Near Livernois and John Kronk	Bridge	No property to be taken. No adverse effect.
3/4	Liv-Jct	16	Southern Avenue Twin Warren Truss Bridge	Southern Avenue west of Wyoming Street	Bridge	No property to be taken. No adverse effect.
3/4	Liv-Jct	17	Clippert Brick Company office	10500 Southern Avenue	Former office building for area brick companies	Building will not be affected. No adverse effect.
3/4	Liv-Jct	18	Central Avenue Fire Station/Engine Company No. 37	2820 Central Avenue	Fire Station	No property to be taken. No adverse effect.

Source: Commonwealth Cultural Resources Group

Eligible Resources
1. W. Vernor Bridge/Deck
2. Roosevelt Park Annex
3. St. Paul's Church Historic District (3 properties)
NRHP Listed Resources
4. MCRR Penn Central Passenger Station
Proposed Terminal Expansion
Existing Terminal
Figure 4-67
CP/Expressway Terminal
Eligible Historic Resources
SOURCE: Detroit 1969 and CCRG

The Michigan Central Railroad (MCRR) passenger station and bridge-deck structure spanning West Vernor Highway is recommended eligible as a contributing element of the NRHP-listed Michigan Central Railroad Station. Its potential for NRHP nomination, either individually or as an element of the NRHP-listed passenger station, relates directly to its unique character as a marker in the early evolution of monolithic reinforced concrete bridge/deck design specific to the ca. 1905-1915 period. Its eligibility would be based on the structure's significance in engineering design (i.e., Criterion C). Under Alternative 2, proposed/modified tracks would have been constructed on the bridge deck structure causing an adverse effect. Hence, a Memorandum of Agreement (MOA) would have been necessary and would have been included in this FEIS, if Alternative 2 had become the preferred alternative. It would have stipulated conditions to mitigate impacts to the property adversely affected.

The two other properties eligible for the National Register but not affected by Alternative 2 are discussed next.

The former U.S. Post Office Roosevelt Park Annex is recommended eligible for listing on the NRHP as an individual resource. Built in 1935 as a PWA-financed project by the noted Detroit-based architectural firm of Albert Kahn, Inc., it stands among the few of the later non-industrial buildings of Kahn design. It is eligible as it is the product of a recognized master architect and embodies a distinctive type of public architecture (PWA Moderne) by incorporating elements of Craftsman/Art Deco composition in its brickwork facades, along with the streamline form of Art Moderne bracketing on the building's main entry (i.e., Criterion C). No property will be taken from this site and project implementation will not represent an adverse effect.

The three-building complex associated with St. Paul's German Evangelical Lutheran Church is recommended eligible as an historic district. It includes three brick buildings originally (1872/1873) associated with the St. Paul's German Evangelical Lutheran Church: the church, school, and residence located on the east side of 17th Street. While all are minimally altered, they continue to maintain a high degree of architectural integrity, and they are characteristic of styles (Gothic Revival and Italianate) popular during the third quarter of the 19th Century (Criterion C). St. Paul's German Evangelical Lutheran church is the only surviving example of three German churches established between 1859 and 1873 in the immediate three-block area of 16th and 17th streets. The church, school, and parsonage are among the few surviving elements of the German ethnic neighborhood that emerged along the westerly fringe of the city's Irish-dominated Corktown district during the third quarter of the nineteenth century. As such, these three elements of the proposed St. Paul's Church Historic District also meet Criterion A, which requires that the district be associated with events or trends significant in history. No property would have been taken at these sites and project implementation would not have represented an adverse effect.

One previously identified archaeological site is in the study area (20WN274). It is located well to the south of the existing CP/Expressway terminal and would not have been adversely affected by facility expansion. Early 20th Century redevelopment impacts associated with the 1913 MCRR station and yard facility were extensive. These entailed the creation of multiple grade separations that surround the entirety of the property proposed for terminal expansion, along with cut-and-fill operations that raised the level of portions of the yard as much as 5 feet (1.5 m) to 8 feet (2.4 m) above the original ground surface. Therefore, given both the intensity and character of alterations in and around the project site the probability of encountering intact prehistoric or early historic archaeological remains is minimal. The use of the existing tractor-trailer yard and the Detroit Department of Public Works property, as part of the larger CP/Expressway expansion area, would not have constituted an adverse affect upon area archaeological resources.

CP/Oak Terminal

Nineteen commercial/industrial buildings dating to a ca. 1945-1959 context were identified and surveyed within the APE. None were judged eligible for nomination to the National Register. As a result of this assessment, the proposed DIFT expansion would not have had an adverse effect upon National Register-eligible above-ground resources. The SHPO concurred that the APE for this terminal contained no National Register-eligible resources (see letter dated October 18, 2004 in Appendix A).

No previously recorded archaeological sites were found in the APE. Industrial development at and around the CP/Oak terminal has been a dominating aspect of land use since the 1940s. The trend was intensified from the 1950s through early 1970s with the same additional rebuilding activity in the easterly half of the APE during the 1990s. As a result, approximately 95 percent of the APE can be defined as built area, consisting of both buildings and extensive paved lot areas.

Therefore, due to the intensity of this past development of the CP/Oak project site, coupled with the elimination of the bulk of the open grounds west of Westwood, project implementation would not have represented an adverse effect upon area archaeological resources.

CN/Moterm Terminal

A review of previously recorded above-ground resources revealed three sites listed on the National Register in the area to the west of the proposed terminal expansion at the Michigan State Fairgrounds (MSF): the Dairy Cattle Building, the Coliseum, and the Agriculture Building (Table 4-38) (Figure 4-68). A reconnaissance-level survey of the MSF found that these three sites, along with the Poultry Building and Whitehall, should be combined as one district that is recommended eligible for the National Register. In addition to this listing, the survey found three other individual sites at the MSF that are recommended eligible for the National Register: the Band Shell, the Grant House, and the Garland Store. No property would have been taken from any of these sites.

The SHPO concurred with the eligibility determinations for these sites and that there would be no effect on any of the properties identified as National Register eligible within the State Fairgrounds property (see letters dated October 18, 2004 and January 21, 2005, in Appendix A).

The area that would be needed for the expansion of the CN/Moterm yard is called the "Railroad Lot" on contemporary site plans of the Fairgrounds. Its existence as a leased property has been an ongoing feature of the Fairground's land use since at least 1935 when the lot was occupied by the Detroit Racing Association. The Railroad Lot presently serves as a distinct component of the State Fairgrounds property used for automotive storage under a lease agreement with an auto distributor. Based on the foregoing, the Railroad Lot and its components are not eligible for listing on the NRHP either individually or as part of a district.

No previously-recorded archaeological sites were found in the APE. Industrial development and redevelopment has been ongoing within the APE over the last 70 years. These activities include: 1) filing water courses on the east portion of the State Fairgrounds for development as a horse race track; 2) conversion of the horse track to auto use, including construction of bleachers; 3) grade separation of the railroad and Eight Mile Road; 4) construction and later removal of concrete pads put in place for horse barns along the north and south edges of the Fairgrounds; 5) development of a private softball field complex; 6) paving related to earlier railroad use; and, 7) covering with gravel to provide a surface for new vehicle storage. Therefore, the probability of encountering intact historic or prehistoric archaeological remains within the proposed expansion area is extremely low.

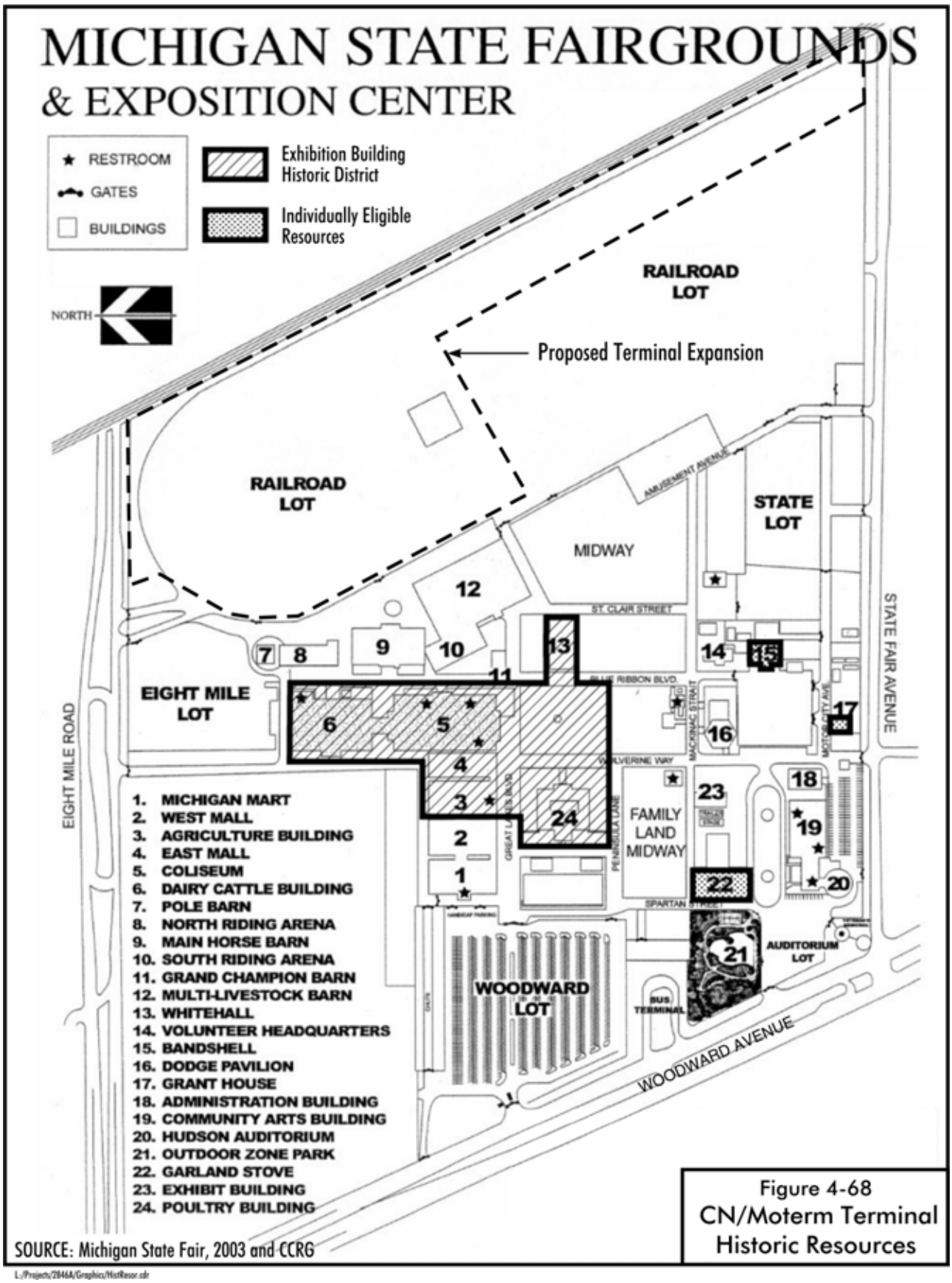

Figure 4-68
CN/Moterm Terminal
Historic Resources

4.13.3 Alternative 3: Consolidate All Four Class I Railroads' Intermodal Activity at Livernois-Junction Yard Area

A field survey of all pre-1959 standing structures was conducted, along with literature research and interviews with knowledgeable persons in the area to determine their historic significance and eligibility for listing on the National Register. Public meetings were held at which information about such resources was discussed. Consultation was undertaken with the SHPO (see letters dated October 18, 2004 and January 21, 2005, in Appendix A). As a result, 11 sites/districts were considered potentially eligible for listing on the National Register at the Livernois-Junction Yard area under the Consolidation Alternative (Table 4-38 and Figure 4-69).

Four of the eligible sites were expected to suffer an adverse effect from Alternative 3 – the Spranger Wire Wheel Company building, the Federal Screw Works Factory, the Markey House, and the Tomms House. Additional information was needed on one of the other sites (the house at 6332 John Kronk) to determine if there will be an adverse effect. Nonetheless, due to the determination of an adverse effect on the four properties cited above, a Memorandum of Agreement (MOA) was necessary and was to be included in this FEIS, if Alternative 3 had been the preferred alternative. The MOA was to stipulate conditions that mitigate impacts to the property adversely affected. Section 6 of the DEIS provided a Draft Section 4(f) Evaluation of the property that would experience an adverse effect and that would be covered in the MOA. ***That section has been updated for the Preferred Alternative for this FEIS.*** Potentially eligible sites in the APE are discussed next.

The following were in, or partially in, the footprint of Alternative 3.

- The Michigan Box Company, also known as the General Box Company, and the Spranger Wire Wheel Company/Detroit Wire Wheel Corporation at 7175 Clayton Street between Parkinson Avenue and Central Avenue is eligible for the National Register. Alternative 3 would have required the demolition of this property, resulting in an adverse effect.
- The Federal Screw Works factory at 3301-3401 Martin Street is eligible for the National Register. Alternative 3 would have required the demolition of this property, resulting in an adverse effect.
- The Rickenbacker Motor Company building/Springfield Body Corporation that runs along Cabot is eligible for the National Register. Eligibility only applies to the northern part of the building not the southern part that was added in the late 1950s. A portion of the non-National Register eligible southern part of the building is inside the project footprint. Removing this non-eligible portion of the building would have had no adverse effect according to the SHPO (see letter dated January 21, 2005, in Appendix A).

The following are within the APE but outside of the proposed expansion footprint of Alternative 3. No property would have been taken from these sites.

- A historic house at 6332 John Kronk on the east end of the project area. A determination on whether there is an adverse visual effect on this site was to be made in consultation with the SHPO.
- The Tomms House at 3434 Martin Street. There would have been a visual adverse effect due to the removal of the Federal Screw Works Factory across the street.
- The Markey House at 3504 Martin Street. There would have been a visual adverse effect due to the removal of the Federal Screw Works Factory across the street.

LEGEND
NRHP Eligible Properties
Existing Terminal Boundary
Alt. 2 Expand Existing Terminals
Alt. 3 Consolidate
Alt. 4 Composite
Not Needed for Preferred Alternative
Proposed Terminal Expansion
Figure 4-69
Livernois-Junction Terminal
Historic Resources
Recommended Above-Ground NRHP Properties
Map Key Number
Address
Historic Property Designation
1 NA Livernois Avenue Art Deco Bridge
2 6332 John Kronk House
3 3434 Martin Tomms House
4 3504 Marlin Markey House
5 3301-3401 Martin Federal Screw Works Factory
6 7175 Clayton Spranger Wire Wheel Company
7 2820 Central Central Avenue Fire Station Number 37
8 4229, 4237, 4311 Central Wolf Brickyard Housing
9 4815 Cabot Rickenbacker Motor Company
10 10500 Southern Clippert Brick Company Office
11 NA Southern Avenue Twin Warren Truss Bridge
Source: U.S.G.S. 7.5' Dearborn Quadrangle (1968 Revised 1973), Detroit Quadrangle (1968 Revised 1980)
SOURCE: CCRG

The following are also within the APE but outside of the project footprint. No property would have been taken from these sites and implementing Alternative 3 would not have represented an adverse effect.

- Three 1890s Queen Ann homes associated with Frederick Wolf and his sons in the Central Avenue and St. John Street area at 4229, 4237, and 4311 Central Avenue make up a historic district that is likely eligible for the National Register.
- The Livernois Avenue Art Deco Bridge (rail) over Livernois Avenue near John Kronk.
- The Southern Avenue Twin Warren Truss Bridge on Southern Avenue west of Wyoming Street (still to be determined if this site is eligible for the National Register).
- The Clippert Brick Company Office at 10500 Southern Avenue.
- The Central Avenue Fire Station/Engine Company No. 37 at 2820 Central Avenue.

An archaeological survey was performed in the APE for Alternative 3. All recorded sites are well beyond the APE. Most of the area has been previously disturbed. The impact of urban and industrial development over the past century has reduced the potential for archaeological site survival. This is especially evident in the destruction of the natural drainageways that previously laced the project area. Cut-and-fill operations along the creek margins, combined with the opening of brickyard clay pits, has had a catastrophic impact on the integrity and continued survival of any archaeological sites associated with the terminal expansion/acquisition parcels and in the APE. However, the SHPO agreed with the assessment that field investigations at two archaeological sites should be conducted prior to construction, if Alternative 3 were chosen as the preferred alternative.

4.13.4 Alternative 4: The Composite Option

The Composite Alternative proposed the intermodal activities of three railroads (CSX, NS and Canadian Pacific) be consolidated at Livernois-Junction Yard, while the CN/Moterm terminal would be expanded onto the "Railroad Lot" on the Michigan State Fairgrounds property. The effects on cultural resources under this alternative were the same as those at CN/Moterm under Alternative 2 and smaller at Livernois-Junction Yard than under Alternative 3. No property would have been taken from any of the eligible historic sites at the Fairgrounds. At the Livernois-Junction Yard the National Register eligible Spranger Wire Wheel Company would have been required for Alternative 4, resulting in an adverse effect. However, unlike Alternative 3, there would not have been an adverse effect on the Federal Screw Works Factory, the Markey House, and the Tomms House.

4.13.5 Preferred Alternative

Above-ground Structures - The Preferred Alternative will have an adverse effect on the Michigan Box Company by causing its removal. A Memorandum of Agreement (MOA) related to this property is included in Appendix C. Impacts to the property are addressed in Section 6 of this FEIS, which is the Final Section 4(f) Evaluation for the DIFT Project. The SHPO has also stated (letter dated June 20, 2005 in Appendix A) the "construction of a barrier wall alongside the railroad yard across the street from the house [6332 John Kronk] has the potential to result in an Adverse Effect on the house through its height, design, and placement. Therefore, any alternative that includes the construction of such a wall must include the condition that the plans for the barrier wall and any landscaping are subject to review and approval by the SHPO." This condition has been added to the MOA. Final resolution will be contained in the Final MOA in the Record of Decision.

Traditional Cultural and Religious Properties – Project early coordination letters were sent to the twelve (12) federally recognized Tribes of Michigan seeking comments regarding any issues and/or special concerns relating to this undertaking. Also, there are no known traditional cultural and/or religious properties claimed or reported by any other cultural group within the area of potential effect. Subsequent to these tribal notifications, no requests for consultation or identification of any Traditional Cultural and/or Religious Properties were received from any of the twelve federally recognized Tribes. Therefore, because there are no reported impacts to traditional cultural and/or religious properties and no request for consultation caused by this undertaking regarding any such properties, no historic properties are affected and the Section 106 process pertaining to traditional cultural and/or religious properties has been completed.

Archaeological Resources – The archaeological Area of Potential Effect (APE) for this project has been researched. Two known extant potential archaeological resources were identified within the APE. The State Historic Preservation Office has agreed that field investigations at these two archaeological sites (Jacque Baby Mill and the Michigan Central Stockyard Hotel) at the Livernois-Junction Yard area are not required. The footprint of the Preferred Alternative is some distance away from the probable mill site, and the site of Stockyards Hotel has been disturbed and/or likely buried beneath fill by construction activity on the part of a railroad by activity unrelated to the DIFT. Ground disturbing activities will not be conducted in this area. As a result of these consultations, it has been determined and agreed that no archaeological resources are affected by this undertaking. In the event any unknown archaeological resources are accidentally identified during the execution of the work, it is agreed that the site is only important for the information it may reveal and not for preservation in place. Construction plans will specify that excavation beneath existing ground disturbance is prohibited in this environmentally sensitive area, and a map depicting the sensitive area will also accompany the plans.

4.14 Parkland and Public Recreation Land

A number of parks are located near the study areas of the four terminals. These are shown on Figure 4-12a-d and listed in Table 4-10a-d along with other community facilities. The portion of the State Fairgrounds proposed for use under Alternatives 2 and 4 was considered to be public recreational land and so impacts to it were covered in Section 6 of the DEIS.

4.14.1 Alternative 1: No Action

Under the No Action Alternative no parkland would have been directly or indirectly affected.

4.14.2 Alternative 2: Improve/Expand Existing Terminals

Under the Improve/Expand Alternative, the only recreation land affected would have been approximately 35 acres of the State Fairgrounds (see Section 6).

Livernois-Junction Yard

- Wilson Playground on Lonyo is to the north of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.
- Loverix Park is south of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.
- Patton Memorial Park is to the south of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.

- Dearborn City Park is west of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.

CP/Expressway Terminal

- Roosevelt Park is to the northeast of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.
- Macomb Park is directly north of the expansion area. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.

CP/Oak Terminal

No parkland would have been directly or indirectly affected near the CP/Oak terminal under the Improve/Expand Alternative.

CN/Moterm Terminal

- The eastern portion of the State Fairgrounds (approximately 35 acres), now leased for new vehicle storage, would have been used (including parking used during the annual State Fair, which runs for about two weeks, usually in August).
- Hunt Playground is east of the existing railroad tracks and the potential expansion area across from the State Fairgrounds. It would not have been directly or indirectly affected by the proposed terminal expansion, including noise.

4.14.3 Alternative 3: Consolidate All Four Railroads' Intermodal Activity at Livernois-Junction Yard Area

The conditions of Alternative 2 for the Livernois-Junction Yard, presented above, applied here.

4.14.4 Alternative 4: The Composite Option

The conditions of Alternative 2 for the Livernois-Junction Yard and the CN/Moterm terminal, presented above, applied here.

Preferred Alternative - Parkland

The Preferred Alternative will not have any direct or indirect effect on any parkland.

4.15 Visual Conditions

One component of visual conditions, terminal lighting, is covered in Section 4.20.

4.15.1 Alternative 1: No Action

Under the No Action Alternative no changes to visual conditions would have occurred. Abandoned properties, salvage yards, and industrial facilities would have remained without improvements to the properties or landscaped buffer areas.

4.15.2 Alternative 2: Improve/Expand Existing Terminals

Livernois-Junction Yard

Under Alternative 2, the north side of the Livernois-Junction Yard, and a portion of the south side, would have had a wall for security which would have screened the terminal (refer to Figures 3-3, 3-4 and 3-5). Nonetheless, abandoned properties, salvage yards, and industrial facilities would have remained immediately adjacent to the terminal.

CP/Expressway Terminal

Under Alternative 2, a City of Detroit Public Works facility, industrial land, and existing rail facilities would have been used to expand the CP/Expressway terminal. Visual conditions would have remained similar to existing conditions.

CP/Oak Terminal

Under Alternative 2, industrial land and existing rail facilities would have been used for the CP/Oak terminal. A wall for security would have been built between the yard and the area to the north, which is primarily industrial. This wall would have shielded the view of the yard (refer to Figure 3-10).

CN/Moterm Terminal

Under Alternative 2, land now used for parking at the Michigan State Fairgrounds would have been converted to terminal use. A wall for security would have been built on the east side of the mainline tracks south of Eight Mile Road. This would have shielded the view of the yard (refer to Figure 3-11).

4.15.3 Alternative 3: Consolidate All Four Railroads' Intermodal Activity at Livernois-Junction Yard Area

Under Alternative 3, a wall would have been built for security on the north side, and part of the south side, of the expanded Livernois-Junction Yard (refer to Figure 3-6). A new perimeter road was also part of the plans on the terminal's north boundary. These features would have shielded the view of the terminal and provided a more visually pleasing setting than the existing conditions. Several abandoned properties, salvage yards, and industrial facilities would have been removed and new intermodal facilities would have been built in their place. Figure 4-70 illustrates several areas that would have been visually improved under the Consolidation alternative. Figure 4-71 provides an example of the visual relationship between the Melvindale intermodal terminal in Detroit and the adjacent neighborhood, in a similar setting.

4.15.4 Alternative 4: The Composite Option

Under Alternative 4, the visual conditions at the Livernois-Junction Yard would have been essentially the same as those for the facilities as described above for Alternative 3 except that the north boundary would have been different. The conditions expected at the CN/Moterm terminal for Alternative 4 would have been those for the facilities as described above for Alternative 2.

Area on Kronk, near Stecker, that potentially would be taken by the Consolidate and Composite Alternatives.

Area on Central, south of existing yard, that potentially would be taken by the Consolidate and Composite Alternatives.

Area on Clayton, east of Central, that potentially would be taken by the Consolidate and Composite Alternatives.

Source: The Corradino Group of Michigan, Inc.

Figure 4-70
Areas Around Livernois-Junction Yard with Opportunities for Visual Enhancements

Figure 4-71
Triple Crown Terminal in Melvindale, Michigan

Source: The Corradino Group of Michigan, Inc.

Preferred Alternative – Visual Conditions

A wall will be built for security on the north side, and part of the south side, of the expanded Livernois-Junction Yard (refer to Figure 3-6). A new perimeter road is also part of the plan on the terminal's north boundary. These features will shield the view of the terminal and provide a more visually pleasing setting than the existing conditions. Several abandoned properties, salvage yards, and industrial facilities will be removed and new intermodal facilities will be built in their place. Figure 4-70 illustrates several areas that will be visually improved. Figure 4-71 provides an example of the visual relationship between the Melvindale intermodal terminal in Detroit and the adjacent neighborhood, in a similar setting.

4.16 Contaminated Sites

A Project Area Contamination Survey (PACS), or Level 1 Environmental Site Assessment, was conducted for the DIFT project.[47] The purpose of the PACS was to investigate parcels of property potentially affected by the project for the presence of environmental contamination and to determine the need for further investigation and mitigation measures. Because there was no development outside the rail terminal under the No Action Alternative, it was not the subject of the PACS.

The PACS included field reconnaissance interviews with business owners, review of federal and state environmental records, and review of historical land use records. The PACS assessed commercial and industrial properties that potentially would have been acquired under one or more of the Action Alternatives being studied. Residential properties were not investigated unless there were specific observations or reported indications of contamination. Nonetheless, most, if not all, are expected to have some asbestos materials which would be appropriately handled during their removal, if such action occurs.

More than five dozen sites were investigated for contamination (see Table 4-39 and Figure 1-16). Table 4-39 contains environmental records, terminal location and affected alternative information, and a contamination potential rating for each site. The federal environmental records and databases searched were CERCLIS (Comprehensive Environmental Response, Compensation, and Liability, Information System); NPL (National Priorities List [Superfund]); RCRIS (Resource Conservation and Recovery Information System); CORRACTS (Corrective Action Report); and, ERNS (Emergency Response Notification System). State environmental records that were reviewed include SHWS (State Contaminated Sites); SWF/LF (Solid Waste Facilities Database); LUST (Leaking Underground Storage Tanks); UST (Underground Storage Tanks); BEA (Baseline Environmental Assessment); Indian UST (USTs on Indian land); and, HIST LF (Inactive Solid Waste Facilities). These databases and lists conform to requirements in ASTM E1527-00 (Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process).

[47] "Project Area Contamination Survey," The Corradino Group, August 2004.

Table 4-39
Contamination Summary
(see Figure 1-16)

Alt.	Terminal	SID No.	Site Name	Address or Location	City	Records Observations							Alt.
						CERCLIS (non NPL)	MI Contam. Sites	LUST	UST	RCRIS – Haz. Waste Generators	Other[a]	Contamination Potential Rating[e]	
3/4/***P***	Liv-Jct	1	MNP Steel Service and Warehouse	3401 Martin	Detroit			X-C	X	X	X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	2	Vacant Industrial	3601 Parkinson	Detroit		X[c]	X-O	X		X	M/H	3/4/***P***
3	Liv-Jct	3	Gal Cro Steel Processing	3631 Parkinson	Detroit		X[c]	X-O	X		X	M/H	3
3/4/***P***	Liv-Jct	4	Fontana Forest Products	7175 Clayton	Detroit				X		X	L	3/4/***P***
3/4/***P***	Liv-Jct	5	Red's Towing Service	7301 Clayton	Detroit						X	M/H	3/4/***P***
2/3/4/***P***	Liv-Jct	6	Advance Auto Glass and Parts	3600 Central	Detroit						X	M/H	2/3/4/***P***
2/3/4/***P***	Liv-Jct	7	Herman Brothers Pet Products/Trager Research & Manufacturing	3650 Central	Detroit						X	M/H	2/3/4/***P***
3/4/***P***	Liv-Jct	8	Heavy Ts Auto Parts/Rod Auto Parts	3760 Central	Detroit		X[d]				X	M/H	3/4/***P***
3	Liv-Jct	9	American Minority Sys/Luco Cartage/Priority Container Serv/PSA-AMSI	7414 Clayton	Detroit						X	L	3
3/4/***P***	Liv-Jct	10	Michigan Wholesale & Repair	3700 Central	Detroit						X	L	3/4/***P***
3/4/***P***	Liv-Jct	11	Lacaria Concrete Construction	3720 Central	Detroit						X	L	3/4/***P***
2/3/4/***P***	Liv-Jct	12	Crown Enterprises (ANR Freight System)	3685 Central	Detroit	X[b]	X[c]		X	X	X	M/H	2/3/4/***P***
3	Liv-Jct	13	Superior Diesel Repair	3735 Central	Detroit					X		M/H	3
3	Liv-Jct	14	Panacea - Property 1	4175-95 Central	Detroit			X-O	X		X	M/H	3
3	Liv-Jct	15	Panacea - Property 2	3936-40 Lonyo	Detroit				X			M/H	3
3	Liv-Jct	16	Panacea - Property 3	3950 Lonyo	Detroit			X-O	X	X		M/H	3
3	Liv-Jct	17	Stanley Cupp	4111 Central	Detroit					X		M/H	3
3/4/***P***	Liv-Jct	18	Dix Scrap Iron & Metal Co	3890 Lonyo	Detroit						X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	19	Big B's Auto	3800 Lonyo	Detroit						X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	20	Spartan Industrial	3896,3930-34 Lonyo	Detroit			X-C	X	X		M/H	3/4/***P***
3/4/***P***	Liv-Jct	21	Spartan Industrial Warehouse	8350 John Kronk	Detroit			X-C	X		X	L	3/4/***P***
3/4/***P***	Liv-Jct	22	Spartan Express	3901 Lonyo	Detroit			X-O	X	X		M/H	3/4/***P***
3	Liv-Jct	23	Jorgenson Collision Center	3949 Lonyo	Detroit					X		M/H	3
3	Liv-Jct	24	American International	4011 Lonyo	Detroit			X-O	X	X		M/H	3

[a] - Other potential contamination site identified by reconnaissance and/or other records.

[b] - Delisted CERCLIS NFRAP (No Further Remedial Action Planned) site.

[c] - Baseline Environmental Assessment has been conducted.

[d] - Michigan State Priority List site.

[e] - Ratings are: L = Low, M = Medium, H = High

P - Preferred Alternative

LUST - Leaking underground storage tank; X-C = Closed case; X-O = Open case.

UST - Underground storage tank.

RCRIS - Resource Conservation and Recovery Information System.

CERCLIS - Comprehensive Environmental Response, Compensation and Liability Information System.

NPL - National Priority Listing.

Table 4-39 (continued)
Contamination Summary
(see Figure 1-16)

Alt.	Terminal	SID No.	Site Name	Address or Location	City	Records/Observations							Alt.
						CERCLIS (non NPL)	MI Contam. Sites	LUST	UST	RCRIS – Haz. Waste Generators	Other[a]	Contamination Potential Rating[e]	
3/4/***P***	Liv-Jct	25	Motor City Corporation	3801 Trenton	Detroit					X	X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	26	S L Cabot, LLC	4157 Cabot	Detroit		X[c]	X-C	X	X		M/H	3/4/***P***
3/4/***P***	Liv-Jct	27	Ferrous Processing Corp	9100 J Kronk	Detroit				X	X		M/H	3/4/***P***
3/4/***P***	Liv-Jct	28	Williams Detroit-Alison	4000 Stecker	Dearborn			X-C	X	X		L	3/4/***P***
3/4	Liv-Jct	29	Jebco Investments LC-Property 1	4200-4300 Stecker	Dearborn						X	L	3/4
3/4	Liv-Jct	30	National Industrial Maintenance	4400 Stecker	Dearborn					X		M/H	3/4
3/4	Liv-Jct	31	R.E. Leggette Company	9335 St. Stephens	Dearborn		X[d]	X-O	X	X		M/H	3/4
3/4	Liv-Jct	32	Truck City, Inc.	4121 Stecker	Dearborn					X		M/H	3/4
3/4	Liv-Jct	33	MCI Telecommunications Corp.	4401 Stecker	Dearborn			X-O			X	M/H	3/4
3/4	Liv-Jct	34	Jebco Investments LC-Property 2	4401 Stecker	Dearborn			X-O		X		M/H	3/4
3/4	Liv-Jct	35	K & R Express	4601 Stecker	Dearborn			X-C	X			M/H	3/4
3/4	Liv-Jct	36	TIP Trailer Leasing	10000 Southern	Dearborn						X	M/H	3/4
3/4	Liv-Jct	37	Advance Pool	10400 Southern	Dearborn			X-O		X	X	M/H	3/4
3/4	Liv-Jct	38	Nour's Investment Company	4210-20 Wyoming	Dearborn			X-O	X	X	X	M/H	3/4
3/4	Liv-Jct	39	GLS Leasco, Inc.	4410 Wyoming	Dearborn				X	X		M/H	3/4
3/4	Liv-Jct	40	Central Transport, Inc.	4440 Wyoming	Dearborn	X	X	X-O	X	X	X	M/H	3/4
3/4	Liv-Jct	41	Jouney, Inc. Steel Service/Seng Tire	4800 Wyoming	Dearborn						X	L	3/4
3/4/***P***	Liv-Jct	42	Action Tire Service Co	3969 Wyoming	Dearborn					X	X	M/H	3/4/***P***
2[f]/3/4/***P***	Liv-Jct	43	Ford Motor Vulcan Plant	3900 Wyoming	Dearborn					X	X	M/H	2[f]/3/4/***P***
2[f]/3/4/***P***	Liv-Jct	44	Cummins Michigan	3760 Wyoming	Dearborn			X-O		X		M/H	2[f]/3/4/***P***
2[f]/3/4/***P***	Liv-Jct	45	Wyoming Self-service	3740 Wyoming	Dearborn						X	L	2[f]/3/4/***P***
2[f]/3/4/***P***	Liv-Jct	46	Vacant Freight Terminal	10100 Mercier	Dearborn						X	L	2[f]/3/4/***P***
2[f]/3/4/***P***	Liv-Jct	47	Vacant Freight Terminal	9900 Mercier	Dearborn			X-O	X	X		M/H	2[f]/3/4/***P***
3/4/***P***	Liv-Jct	48	Boulevard & Trumbull Inv., Inc.	7700 Dix[g]	Detroit		X	X-O	X	X	X	M/H	3/4/***P***

[a] - Other potential contamination site identified by reconnaissance and/or other records.

[b] - Delisted CERCLIS NFRAP (No Further Remedial Action Planned) site.

[c] - Baseline Environmental Assessment has been conducted.

[d] - Michigan State Priority List site.

[e] - Ratings are: L = Low, M = Medium, H = High

[f] - These properties would be needed under Alternative 2 Option B, but not needed under Alternative 2 Options A and C.

[g] - This site also includes 7800, 7840, 7904 and 7950 Dix.

P - Preferred Alternative

LUST - Leaking underground storage tank; X-C = Closed case; X-O = Open case.
UST - Underground storage tank.
RCRIS - Resource Conservation and Recovery Information System.
CERCLIS - Comprehensive Environmental Response, Compensation and Liability Information System.
NPL - National Priority Listing.

Table 4-39 (continued)
Contamination Summary
(see Figure 1-16)

Alt.	Terminal	SID No.	Site Name	Address or Location	City	Records/Observations							Alt.
						CERCLIS (non NPL)	MI Contam. Sites	LUST	UST	RCRIS – Haz. Waste Generators	Other[a]	Contamination Potential Rating[e]	
2/3/4/***P***	Liv-Jct	49	Lafayette Recycling	7700,7730,7750 Dix	Detroit			X-O	X		X	M/H	2/3/4/***P***
3/4/***P***	Liv-Jct	50	M. Dick & S.F. Corbell	2881 Central[h]	Detroit						X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	51	Central Avenue Properties LLC	2921, 2951 Central	Detroit		X				X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	52	Thomas Adams, Jr.	2971,81,91 Central	Detroit						X	L	3/4/***P***
2/3/4/***P***	Liv-Jct	53	Chester Herman Warehouse	3005,11 21 Central	Detroit						X	L	2/3/4/***P***
2/3/4/***P***	Liv-Jct	54	Central Auto Parts	3022 Central/7276 Dix	Detroit						X	M/H	2/3/4/***P***
3/4/***P***	Liv-Jct	55	Central Auto Clinic	2910,2930 Central	Detroit						X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	56	S. Corbell Property	2880-96 Central	Detroit						X	M/H	3/4/***P***
3/4/***P***	Liv-Jct	57	Vacant Commercial Lots	2803-2889 Stair	Detroit						X	L	3/4/***P***
3/4/***P***	Liv-Jct	58	Trimodal	7100,7256,60,7272 Dix	Detroit			X-C	X	X		M/H	3/4/***P***
2	CP/Oak	59	Milford Fabricating Company	12810 Auburn[i]	Detroit			X-C	X		X	M/H	2
2	CP/Oak	60	Madias Brothers/Grove Recycling/First Evergreen	12850 Evergreen	Detroit			X-C	X	X		M/H	2
2	CP/Oak	61	Gateway Detroit Assoc/Parsec/Roofing Ins/Piston Auto/Technicolor. LLC	12601 Southfield	Detroit			X-O	X	X	X	M/H	2
2	CP/Oak	62	T&B Properties/Michigan Glove & Safety, Inc.	12801 Auburn	Detroit					X	X	L	2
2	CP/Oak	63	Praxair Distribution	12820 Evergreen	Detroit			X-O	X	X	X	M/H	2
2	CP/Oak	64	L&M Leasing Associates/Ferrini Contracting Corp.	12735 Auburn	Detroit				X	X	X	M/H	2
2	CP/Oak	65	Metaldyne	19001 Glendale	Detroit				X	X	X	M/H	2
2	CP/Expressway	66	Department of Public Works	2633 Michigan	Detroit			X-O		X	X	M/H	2
2/3/4/***P***	Liv-Jct	67	Detroit Brake Parcel	5030 Military	Detroit						X	L	2/3/4/***P***

[a] - Other potential contamination site identified by reconnaissance and/or other records.
[b] - Delisted CERCLIS NFRAP (No Further Remedial Action Planned) site.
[c] - Baseline Environmental Assessment has been conducted.
[d] - Michigan State Priority List site.
[e] - Ratings are: L = Low, M = Medium, H = High
[f] - These properties would be needed under Alternative 2 Option B, but not needed under Alternative 2 Options A and C.
[g] - This site also includes 7800, 7840, 7904 and 7950 Dix.
[h] - This site also includes 2881, 2887, 2889 and 2897 Central.
[i] - This site also includes 12820 Auburn, 12620, 12646, 12650, 12660, and 12661 Westwood.

P - Preferred Alternative

LUST - Leaking underground storage tank; X-C = Closed case; X-O = Open case.
UST - Underground storage tank.
RCRIS - Resource Conservation and Recovery Information System.
CERCLIS - Comprehensive Environmental Response, Compensation and Liability Information System.
NPL - National Priority Listing.

The PACS found:

- no NPL sites;
- two CERCLIS sites, both of which were NFRAP (No Further Remedial Action Planned) sites – ANR Freight System (Crown Enterprises), 3685 Central Avenue, and Central Transport, Inc., 4440 Wyoming;
- no RCRIS TSD facilities (Treatment, Storage or Disposal);
- 31 RCRIS hazardous waste generators;
- no CORRACTS sites;
- four ERNS sites;
- nine Michigan Contaminated Sites List sites; and,
- 28 LUST sites.

Based on interviews with property owners and occupants, site visits, and record reviews, each of the sites was rated low (L), medium (M), or high (H) for potential environmental contamination.

L (Low): These sites include known current or former hazardous or petroleum handlers that are not currently being investigated or remediating an environmental problem. Examples of this category are gas stations that have been designated "closed LUST" sites and businesses that handle hazardous materials or petroleum.

M/H (Medium/High): These sites have a reasonable chance of contamination on a given site. Examples of this category include gas stations that are identified by MDEQ as open LUST sites, former gas stations closed prior to December 1988 (the date of current federal and state UST regulations), sites on the Michigan Central Contaminated Sites List, and sites that exhibit indications of improper handling of materials, such as the presence of stained soils, improperly stored materials, etc., or other evidence of a recognized environmental condition. These sites may need sampling and testing to characterize their environmental condition.

Nine of the 15 M/H rated sites for Alternative 2, and all of the M/H rated sites for Alternative 3 (45 sites) and Alternative 4 (37 sites) were located in the area adjacent to the Livernois-Junction Yard. This area has been in industrial/commercial usage for 100 years or more and is predominantly occupied by automobile salvage businesses, truck and automotive repair shops and motor freight terminals. The most common environmental issues associated with these land uses are soil impacts from oils, metals, and solvents and subsurface soil/groundwater impacts from leaking petroleum underground storage tanks. All sites rated M/H might have needed further investigation and/or soil borings to further assess contamination potential.

The PACS also investigated a vacant parcel that is part of the Detroit Brake Machining property on the northeast corner of I-94 and Livernois Avenue. This site was reviewed because it would have been acquired for improvements to the I-94/Livernois interchange for Alternatives 2, 3 and 4. This site was rated Low for contamination potential based on a review of environmental and historical land use records. Additional investigation would be needed if right-of-way from the adjoining Detroit Brake forge property were to be acquired.

The review of historical land use records revealed that several brickyards and clay pits were located along John Kronk in the late 1800s and early 1900s. Some of the historical references suggest that industrial wastes were used to backfill the clay pits. Some of the landowners interviewed during the PACS noted the possibility of fill on their properties. The review of MDEQ records did not identify any records or investigative reports of filled clay pits in the project area. Sites located at former clay pits were rated M/H because of the possibility of contaminated fill. These sites and the Central Transport site at 4440 Wyoming, which was

reportedly used as a landfill, would have required more extensive investigations to characterize their environmental condition.

It is expected that many of the impacts identified during the PACS can be managed through the use of measures such as limited soil removal. Most of the M/H rated LUST sites identified for this project are currently being remediated under the jurisdiction of MDEQ and will likely be restored before the property acquisition phase of the project begins.

A limited Preliminary Site Investigation (PSI) was also conducted as part of the environmental assessment process. The purpose of the PSI was to further investigate parcels of property identified in the PACS as having known or suspected contamination. Typically, the PSI consists of on-site sampling of soils, groundwater, and/or surface water and laboratory analysis of samples. The PSI conducted for the DIFT Project consisted of soil borings in public rights-of-way near the Livernois-Junction Yard, the CP/Expressway and CP/Oak terminals in Detroit, because landowners would not grant permission to collect samples on their properties. The soil borings in the public rights-of-way provided a means of examining subsurface soil conditions to identify indications of pervasive contamination and backfilled clay pits, which have been well documented in the vicinity of the Livernois-Junction Yard. The findings of the PSI did not reveal any indications of pervasive soil contamination or fill. No soil borings were conducted in Dearborn for the Livernois-Junction Yard, or at the CN/Moterm terminal (Ferndale).

With project implementation of any Action Alternative, additional soil borings will be required before a property is acquired/remediated. Impacts will be minimized by disposing contaminated materials properly and by protecting workers. A Risk Assessment Plan will be developed, if the DIFT project goes forward, to include a Worker Health and Safety Plan. If monitoring wells are present, they will be abandoned properly. All contaminated areas will be marked on the plans. A Utility Plan will also be prepared to ensure no deep utility cuts will impact and/or spread existing contamination.

Preferred Alternative

All of the conclusions of the preceding paragraph remain valid for the Preferred Alternative. Likewise, conclusions above related to the properties listed in Table 4-39 for the Preferred Alternative also remain valid. Twenty-seven properties rated M/H will require further mitigation and/or soil borings to further assess soil contamination.

4.17 Indirect and Cumulative Impacts

The indirect (secondary) and cumulative effects associated with the proposed improvements to intermodal terminal development are presented here. The basis upon which the analysis was conducted is defined in federal guidance, which indicates the following:

Indirect (secondary) effects – Caused by an action (intermodal terminal expansion) and occurring later in time or farther removed in distance, but occurring in the reasonably foreseeable future (40 CFR 1508.8(b)).

Cumulative effects – Resulting from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions (40 CFR 1508.7).

The indirect effects are **summarized in** Table 4-**40 (Practical Alternatives) and Table 4-41 *(Preferred Alternative).***

Table 4-40
Summary of Indirect Impacts

Impact ↓ / Terminal Area →	ALT 1 - 2025 NO ACTION			ALT 2 - 2025 IMPROVE/EXPAND			ALT 3 - 2025 CONSOLIDATE	ALT 4 - 2025 COMPOSITE	
	LIV-JCT-CP/EXP[a]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[b]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[c]	LIV-JCT-CP/EXP[d]	CN/MOTERM
Mobility — Traffic	• Acceptable levels of traffic congestion throughout network except at Dix/ Waterman/ Vernor intersection.	• Acceptable levels of traffic congestion throughout network.	• Acceptable levels of traffic congestion throughout network.	• Acceptable levels of traffic congestion throughout network except at Dix/Waterman/ Vernor gate area under Option A.	• Acceptable levels of traffic congestion throughout network.	• Acceptable levels of traffic congestion throughout network.	• Acceptable levels of traffic congestion throughout network but five intersections which can be made acceptable by modified signal phasing.	• Acceptable levels of traffic congestion throughout network but five intersections which can be made acceptable by modified signal phasing.	• Acceptable levels of traffic congestion throughout network.

Economic Impacts — Jobs[e] in terminal area	• Net Jobs Gained:
	  • Terminal Area 194
	  • Overall 1,029
		• Net Jobs Gained:
		  • Terminal Area 130
		  • Overall 1,029
			• Net Jobs Gained:
			  • Terminal Area 88
			  • Overall 1,029
				• Net Jobs Gained:
				  • Terminal Area 786
				  • Overall 4,950
					• Net Jobs Gained:
					  • Terminal Area 187
					  • Overall 4,950
						• Net Jobs Gained:
						  • Terminal Area 390
						  • Overall 4,950
							• Net Jobs Gained:
							  • Terminal Area 2,245
							  • Overall 9,050
								• Net Jobs Gained:
								  • Terminal Area 1,956
								  • Overall 8,819
									• Net Jobs Gained:
									  • Terminal Area 695
									  • Overall 8,819

Land Use — Land Use	• Maintains existing land use pattern. • Up to 10 acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity.	• Maintains existing land use pattern. • Up to 5 acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity.	• Maintains existing land use pattern. • Up to 5 acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity.	• Consistent with Detroit and Dearborn land use plans. • Up to 40 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity.	• Detroit land use plan does not mention terminal. • Up to 15 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity	• Consistent with Detroit and Ferndale land use plans. • Up to 20 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity	• Consistent with Detroit and Dearborn land use plans. • Up to 120 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity.	• Consistent with Detroit and Dearborn land use plans. • Up to 100 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity	• Consistent with Detroit and Ferndale land use plans. • Up to 20 net acres of available land converted to uses by industrial and commercial businesses supporting intermodal activity
Air Quality — Carbon Monoxide Hot Spots	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.	• No violations of CO standards at intersections.
Air Quality — Pollutant Burden	• Terminal burdens less than existing conditions except for PM_{10} and $PM_{2.5}$. • Roadway burdens less than existing conditions because of cleaner engines and fuels. • Regional burdens are reduced.	• Terminal burdens less than existing conditions except for PM_{10} and $PM_{2.5}$. • Roadway burdens less than existing conditions because of cleaner engines and fuels. • Regional burdens are reduced.	• Terminal burdens less than existing conditions except for PM_{10} and $PM_{2.5}$. • Roadway burdens less than existing conditions because of cleaner engines and fuels. • Regional burdens are reduced.	• Terminal burdens increase over No Action due to increased intermodal activity. • Roadway burdens virtually same as No Action. • Regional burdens are reduced.	• Terminal burdens increase over No Action due to increased intermodal activity. • Roadway burdens virtually same as No Action. • Regional burdens are reduced.	• Terminal burdens increase over No Action due to increased intermodal activity. • Roadway burdens virtually same as No Action. • Regional burdens are reduced	• Terminal burdens increase over No Action due to increased intermodal activity. • Roadway burdens slightly less than No Action. • Regional burdens are reduced.	• Terminal burdens about same as No Action even with increased intermodal activity. • Roadway burdens slightly less than No Action. • Regional burdens are reduced.	• Terminal burdens about same as No Action even with increased intermodal activity. • Roadway burdens same as No Action. • Regional burdens are reduced.

[a] Includes the Livernois-Junction Yard, CP/Expressway, and NS/Delray and Triple Crown terminals.
[b] Includes the existing Livernois-Junction Yard and CP/Expressway terminals. The intermodal operations of NS at Delray and Triple Crown will be transferred to the Livernois-Junction Yard. These latter two terminals would serve non-intermodal railroad business.
[c] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway, CP/Oak and CN/Moterm. These latter three terminals would serve non-intermodal railroad business.
[d] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway and CP/Oak. These latter two terminals would serve non-intermodal railroad business.
[e] Net jobs are those gained in terminal area. Each terminal area is defined as an "impact zone" around each existing intermodal terminal.
Source: The Corradino Group of Michigan, Inc.

Table 4-40 (continued)
Summary of Indirect Impacts

Impact ↓ / Terminal Area →		ALT 1 - 2025 NO ACTION			ALT 2 - 2025 IMPROVE/EXPAND			ALT 3 - 2025 CONSOLIDATE	ALT 4 - 2025 COMPOSITE	
		LIV-JCT-CP/EXP[a]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[b]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[c]	LIV-JCT-CP/EXP[d]	CN/MOTERM
Community	Effects on Community Cohesion	• Industrial/ commercial uses will continue to be mixed with residential uses. • Continued rail/vehicle conflicts at Central/Lonyo.	• Industrial/ commercial uses will continue to be mixed with residential uses.	• Industrial/ commercial uses will continue to be mixed with residential uses.	• Lonyo closed. Central railroad crossing grade separated. • Truck traffic reduced on neighborhood streets.	• Truck traffic reduced on neighborhood streets.	• Truck traffic reduced on neighborhood streets.	• Lonyo closed. Central railroad crossing grade separated. • Truck traffic reduced on neighborhood streets.	• Lonyo closed. Central railroad crossing grade separated. • Truck traffic reduced on neighborhood streets.	• Truck traffic reduced on neighborhood streets.
	Potential Environmental Justice Issues	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected	• No adverse disproportionate impact expected
	Change in Aesthetics	• Intermodal terminals/activity will continue to grow without aesthetic improvements and protection of surrounding neighborhoods.	• Intermodal terminals/activity will continue to grow without aesthetic improvements and protection of surrounding neighborhoods.	• Intermodal terminals/activity will continue to grow without aesthetic improvements and protection of surrounding neighborhoods.	• Spillover effect from improved terminal aesthetics.	• Spillover effect from improved terminal aesthetics.	• Spillover effect from improved terminal aesthetics.	• Spillover effect from improved terminal aesthetics. New north side perimeter road will also enhance area and have spillover effect.	• Spillover effect from improved terminal aesthetics. New north side perimeter road will also enhance area and have spillover effect.	• Spillover effect from improved terminal aesthetics.

[a] Includes the Livernois-Junction Yard, CP/Expressway, and NS/Delray and Triple Crown terminals.
[b] Includes the existing Livernois-Junction Yard and CP/Expressway terminals. The intermodal operations of NS at Delray and Triple Crown will be transferred to the Livernois-Junction Yard. These latter two terminals would serve non-intermodal railroad business.
[c] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway, CP/Oak and CN/Moterm. These latter three terminals would serve non-intermodal railroad business.
[d] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway and CP/Oak. These latter two terminals would serve non-intermodal railroad business.
[e] Net jobs are those gained in terminal area. Each terminal area is defined as an "impact zone" around each existing intermodal terminal.
Source: The Corradino Group of Michigan, Inc.

Table 4-40 (continued)
Summary of Indirect Impacts

Impacts ↓ / Terminal Area →		ALT 1 - 2025 NO ACTION			ALT 2 - 2025 IMPROVE/EXPAND			ALT 3 - 2025 CONSOLIDATE	ALT 4 - 2025 COMPOSITE	
		LIV-JCT-CP/EXP[a]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[b]	CP/OAK	CN/MOTERM	LIV-JCT-CP/EXP[c]	LIV-JCT-CP/EXP[d]	CN/MOTERM
Noise	Noise Considerations	• No perceptible increase.	• No perceptible increase.	• No perceptible increase.	• No perceptible increase with planned ***security*** wall.	• No perceptible increase with planned ***security*** wall.	• No perceptible increase with planned ***security*** wall.	• No perceptible increase with planned ***security*** wall.	• No perceptible increase with planned ***security*** wall.	• No perceptible increase with planned ***security*** wall.
Cultural 4(f) Resources	Effects on Historic/Archaeological Resources	• No indirect effect	• No indirect effect	• No indirect effect	• Potential positive spillover effect.	• Potential positive spillover effect.	• Potential positive spillover effect.	• Potential positive spillover effect.	• Potential positive spillover effect.	• Potential positive spillover effect.
	Effects on Parklands/ Recreational Land	• No indirect effect	• No indirect, effect	• No indirect effect	• No indirect effect	• No indirect effect	• No indirect effect	• No indirect effect	• No indirect effect	• No indirect effect
Contaminated Sites		• Potential to remediate up to 10 acres for non-terminal intermodal activity	• Potential to remediate up to 5 acres for non-terminal intermodal activity	• Potential to remediate up to 5 acres for non-terminal intermodal activity	• Potential to remediate up to 40 acres for non-terminal intermodal activity	• Potential to remediate up to 15 acres for non-terminal intermodal activity	• Potential to remediate up to 20 acres for non-terminal intermodal activity	• Potential to remediate up to 120 acres for non-terminal intermodal activity	• Potential to remediate up to 100 acres for non-terminal intermodal activity	• Potential to remediate up to 20 acres for non-terminal intermodal activity
Water	Water Quantity/Quality	• Spill prevention plans will be in place.	• Spill prevention plans will be in place.	• Spill prevention plans will be in place.	• Yard paving will improve drainage. • Spill prevention plans will be in place.	• Yard paving will improve drainage. • Spill prevention plans will be in place.	• Fairgrounds is now gravel. Yard paving will improve drainage. • Spill prevention plans will be in place.	• Yard paving will improve drainage. • Spill prevention plans will be in place.	• Yard paving will improve drainage. • Spill prevention plans will be in place.	• Fairgrounds is now gravel. Yard paving will improve drainage. • Spill prevention plans will be in place.
	Quantity/Quality of Wetlands Affected	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.	• No indirect effect.

[a] Includes the Livernois-Junction Yard, CP/Expressway, and NS/Delray and Triple Crown terminals.
[b] Includes the existing Livernois-Junction Yard and CP/Expressway terminals. The intermodal operations of NS at Delray and Triple Crown will be transferred to the Livernois-Junction Yard. These latter two terminals would serve non-intermodal railroad business.
[c] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway, CP/Oak and CN/Moterm. These latter three terminals would serve non-intermodal railroad business.
[d] Includes the expanded Livernois-Junction Yard to accommodate the intermodal operations of CP/Expressway and CP/Oak. These latter two terminals would serve non-intermodal railroad business.
[e] Net jobs are those gained in terminal area. Each terminal area is defined as an "impact zone" around each existing intermodal terminal.
Source: The Corradino Group of Michigan, Inc.

Table 4-41
Summary of Indirect Impacts – Preferred Alternative

Livernois-Junction Yard Area[a]					
			Air Quality		
Mobility	**Economic Impacts**	**Land Use**	**Hot Spots**	**Pollutant Burden**	**Community Cohesion**
• Grade separation of Central will reduce vehicle-rail conflicts and crashes. • I-94/Livernois interchange improvement will improve safety. • Truck traffic will be reduced on local roads.	• Net Jobs Gained: Terminal Area 1,542 ***Statewide*** 4,514	• Consistent with Detroit and Dearborn land use plans. • Likely stimulation of local redevelopment.	• No violations of CO standards at intersections. • Qualitative analysis of PM2.5 or PM10 hotspots indicates there will be no standards violated.	• Terminal burdens about same as No Action even with increased intermodal activity. • Roadway burdens similar to No Action. • Regional burdens will be reduced with freight shift to rail.	• Lonyo will be closed. Central Avenue railroad crossing will be grade separated. • Truck traffic will be reduced on neighborhood streets.

		Cultural			
Environmental Justice	**Noise Considerations**	**Historic/ Archaeological 4(f) Resources**	**Parklands/ Recreational Land 4(f) Resources**	**Contaminated Sites**	**Surface Water Impacts**
• There is a history of impacts to minority and low-income populations associated with past industrialization and transportation projects. There will be adverse disproportionate impacts from this project.	• No perceptible increase with the addition of planned security walls.	• Potential positive spillover effect.	• No indirect effects.	• Up to 100 acres for non-terminal intermodal activity will be remediated.	• Yard paving will improve drainage. • Spill prevention plans will be in place. • Particulate matter that clogs sewers will be reduced.

Wetlands	**Farmland *and Open Space* /Part 361 Lands**	**Threatened and Endangered Species**	**Visual Effects**	**Soils**	**Energy**
• No indirect impact.	• No active farmland, or Part 361 land needed.	• No indirect impact.	• Potential spillover effect from buffer around yard.	• No indirect impact	• Improved efficiencies from conversion of some freight shipments from truck to rail are expected.

[a] ***Only the Livernois-Junction Yard is involved in the Preferred Alternative. There are no project impacts at other terminals.***

Alternative 1: No Action

Livernois-Junction Yard/CP-Expressway Terminal Area – Alternative 1

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the Livernois-Junction Yard/CP-Expressway terminal area would have occurred under Alternative 1:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the terminals except at the Dix/Waterman/Vernor intersection/gate area, as presented in Section 4.1. This conclusion extends to traffic brought by induced growth.
- **Economic Impacts** – Over the next 20 years there would have been almost 200 jobs created in the terminal area due to continuing growth of intermodal activity, as defined in Section 4.5.
- **Land Use** – The expected investment of the railroads in intermodal activity would have been likely to stimulate, over the next 20 years, private sector industrial/commercial use of up to 10 acres of available land in the terminal area, as defined in Section 4.5. This expected use of land was consistent with development patterns that currently exist.
- **Air Quality** – Analyses presented in Section 4.8 indicate no violations of CO standards were expected in the areas around the terminals. Compared to today's conditions, pollution would have been expected to be lower largely because of the use of cleaner engines and fuels, as mandated by U.S. EPA. Nonetheless, the railyards were not paved under Alternative 1. Regionally, pollutants were forecast to be lower due to the diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – Continued vehicle conflicts were expected at Lonyo and Central as the rail lines at these street crossings were not to be separated from the railroad tracks, as defined in Section 4.1. And, industrial and commercial uses were expected to continue to be mixed with residential uses in the terminal area, as they are today, and defined in Section 4.6. This pattern was not likely to be associated with aesthetic improvements to enhance/protect surrounding neighborhoods.
- **Noise** – No perceptible noise increases at sensitive receptors due to terminal activity were forecast from current conditions, as defined in Section 4.9.
- **Cultural Resources** – No effect was expected on historical or archaeological resources, nor parks/recreational lands, as presented in Sections 4.13 and 4.14, respectively.
- **Contaminated Sites** – The increased intermodal activity could cause, over the next 20 years, up to 10 acres of contaminated land (e.g., brownfields) to be reclaimed by private sector development.
- **Water Quality** – The status quo in water quality was expected to continue, as future conditions would be a continuation of past trends, as discussed in Section 4.11. Prevention plans to address spills of hazardous materials would have continued to be maintained by the railroads as required by the federal government. The small amount (up to 10 acres) of potentially reclaimed properties (e.g., brownfields) was also considered a continuation of current trends.

The results of the conditions presented above indicate the base condition with no change will perpetuate the trends of the last 30 to 50 years in the Livernois- Junction/CP-Expressway terminal area.

CP/Oak Terminal Area – Alternative 1

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the CP/Oak terminal area would have occurred under Alternative 1:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the CP/Oak terminal. Even still, truck traffic will continue to use neighborhood streets, as today, as presented in Section 4.1. This conclusion extends to traffic brought by induced growth.
- **Economic Impacts** – Over the next 20 years, there would have been about 130 jobs created in the terminal area due to continuing growth of intermodal activity, as defined in Section 4.5.
- **Land Use** – The expected investment of the railroads in intermodal activity would have been likely to stimulate, over the next 20 years, private sector industrial/commercial use of up to five acres of available land in the terminal area to support intermodal activity, as defined in Section 4.5. This use of land would have been consistent with development patterns that currently exist.
- **Air Quality** – Analyses presented in Section 4.8 indicate no violations of CO standards would have been expected in the terminal area. Compared to today's conditions, pollution would be expected to be lower largely because of the use of cleaner engines and fuels, as mandated by EPA. Regionally, pollutants would have been forecast to be reduced due to the diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – No acquisition would have been associated with terminal expansion as there would have been none, as defined in Section 4.4. Industrial and commercial uses are expected to continue to be mixed with residential uses in the terminal area, as they are today, and as defined in Section 4.6. This pattern would not have been likely to be associated with aesthetics improvements.
- **Noise** – No perceptible noise increase at sensitive receptors due to terminal activity would have been forecast from current conditions, as defined in Section 4.9.
- **Cultural Resources** – No effect was expected on historical or archaeological resources, nor parks/recreational lands, as presented in Sections 4.13 and 4.14, respectively.
- **Contaminated Sites** – The increased intermodal activity could have caused, over the next 20 years, up to five acres of contaminated land in brownfields to be reclaimed by private sector development.
- **Water Quality** – The status quo in water quality was expected to continue, as future conditions will be a continuation of past trends, as discussed in Section 4.11. Prevention plans to address spills are and will continue to be maintained by the railroads as required by the federal government. The small amount (up to five acres) of potentially reclaimed properties (e.g., brownfields) would have been considered a continuation of current trends.

The results of the conditions presented above indicate there would have been no change in the trends of the last 30 to 50 years in the CP/Oak terminal area.

CN/Moterm Terminal Area – Alternative 1

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the CN/Moterm terminal area would have occurred under Alternative 1:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the CN/Moterm terminal. This conclusion extends to traffic brought by induced growth.
- **Economic Impacts** – Over the next 20 years, there would have been about 90 jobs created in the terminal area due to continuing growth in intermodal activity, as defined in Section 4.5.
- **Land Use** – The expected investment of the railroads in intermodal activity would have been likely to stimulate, over the next 20 years, industrial/commercial use of up to five acres of available land in the terminal area, as defined in Section 4.5. This use of land would have been consistent with development patterns that currently exist.
- **Air Quality** – Analyses presented in Section 4.8 indicate no violations of CO standards would have been expected in the area around the terminal. Compared to today's conditions, pollution would have been expected to be lower, largely because of the use of cleaner engines and fuels, as mandated by EPA. Regionally, pollutants were forecast to be lower due to the diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – No acquisition would have been associated with terminal expansion as there would have been none, as defined in Section 4.4. Industrial and commercial uses are expected to continue to be mixed with residential uses in the terminal area, as they are today, and as defined in Section 4.6. This pattern would have been likely to be associated with aesthetic improvements.
- **Noise** – No perceptible noise increase was forecast at sensitive receptors due to terminal activity from current conditions, as defined in Section 4.9.
- **Cultural Resources** – No effect was expected on historical and archaeological resources, nor parks/recreational lands, as presented in Sections 4.13 and 4.15, respectively.
- **Contaminated Sites** – The increased intermodal activity could have caused, over the next 20 years, up to five acres of contaminated land (e.g., brownfields) to be reclaimed by private sector development.
- **Water Quality** – The status quo in water quality was expected to continue, as future conditions will be a continuation of past trends, as discussed in Section 4.11. Prevention plans to address spills are and will continue to be maintained by the railroads as required by the federal government. The small amount (up to five acres) of potentially reclaimed properties (brownfields) would have been considered a continuation of current trends.

The results of the conditions presented above indicate there would have been no change in the trends of the last 30 to 50 years in the CN/Moterm terminal area. This condition, though, would have been less positive overall than the Action Alternatives, discussed next.

Alternative 2: Improve/Expand Existing Terminals

Livernois-Junction Yard/CP-Expressway Terminal Area – Alternative 2

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the Livernois-Junction/CP-Expressway terminal area would have occurred under Alternative 2:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the terminals, except at the Dix/Waterman/Vernor intersection/gate area under Option A, as presented in Section 4.1. Truck traffic

would have been reduced on neighborhood streets. And, Lonyo would be closed while the Central Avenue crossing of the railroad tracks would have become grade separated, thereby improving the safe movement of traffic around the terminal area. Finally, improving the I-94/Livernois interchange would have improved safe truck movements and reduced truck traffic on neighborhood streets. The acceptable level of service would have remained true with induced growth except at Dix/Waterman/Vernor.

- **Economic Impacts** – Over the next 20 years, there would have been about 800 jobs created in the terminal area due to intermodal activity, as defined in Section 4.5. Growth in the local tax base was forecast as was local business expansion.
- **Land Use** – The expected investment by the railroads and government would have been likely to stimulate, over the next 20 years, industrial/commercial use of up to 40 acres of available land in the terminal area to support intermodal activity, as defined in Section 4.5. This intermodal development activity would have been consistent with the land use plans of Detroit and Dearborn. Unwanted mixing of land uses must be resisted by applying already-existing provisions of the Detroit Master Plan and Policies and Dearborn Master Plan.
- **Air Quality** – Analyses presented in Section 4.8 indicate no violations of CO standards would have been expected in the areas around the terminals. Compared to the No Action condition in 2025, terminal pollutant burdens were expected to increase due to the forecast increase in intermodal activity. The Livernois-Junction Yard would have been paved. The 2025 pollution burdens of the roadways around the terminals were forecast to be virtually the same as today. The regional mobile source pollutant burdens were expected to be reduced due to diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – Lonyo would have been closed and Central Avenue rebuilt to pass under the railroad lines, improving the safe flow of vehicles. Truck traffic on neighborhood streets would have been reduced. Walls for security on the north side of the terminal, and part of the south, would have buffered its activity, improving the aesthetics of the area. The terminal would have been paved, reducing the effects of dust on the nearby population.
- **Noise** – No perceptible increase in noise in sensitive areas was expected with planned walls for security purposes, as defined in Section 4.9. Traffic volumes in the terminal area would have increased as economic conditions improve.
- **Cultural Resources** – There would be no indirect effects on cultural resources. No effects were forecast on parks/recreational lands, as presented in Section 4.14.
- **Contaminated Sites** – The increased intermodal activity could have caused, over the next 20 years, up to 40 acres of contaminated land (e.g., brownfields) to be reclaimed by private sector development. This could have led to reduced exposure to contamination and improved the quality of stormwater runoff.
- **Water Quality** – As discussed in Section 4.11, it was expected that paving the Livernois-Junction Yard would have improved drainage as the runoff today clogs sewer inlets which causes standing water. Where the project increased stormwater amounts by paving terminals surfaces that now absorb water, storage would have been engineered into the system (oversized pipes or retention areas) so that the flow rate of stormwater did not increase. Because of the combined sewer system, all water would have been treated before it flowed to the Detroit River. Prevention plans to address accidental spills of hazardous materials would have continued to be maintained by the railroads as required by the federal government. Reclaiming up to 40 acres of potentially contaminated property (brownfields) might have occurred.

Positive developments were forecast in the economic impacts, land use and community effects.

CP/Oak Terminal Area – Alternative 2

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the CP/Oak terminal area would have occurred under Alternative 2:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the terminal, as presented in Section 4.1. This conclusion extends to traffic brought by induced growth.
- **Economic Impacts** – Over the next 20 years, 600 jobs relocated from the terminal would have been regained and another 200 created in the terminal area. As a result, local business expansion was also expected as well as growth in the tax base.
- **Land Use** – The expected investment by the railroads and government would have been likely to stimulate, over the next 20 years, industrial/commercial use of up to 15 acres of available land in the terminal area to support intermodal activity, as defined in Section 4.5. This intermodal development activity would have been consistent with the land use plan of Detroit. Unwanted mixing of land uses should be resisted by applying already-existing provisions of the Detroit Master Plan of Policies.
- **Air Quality** – Analyses presented in Section 4.8 indicated no violations of CO standards were expected in the areas around the CP/Oak terminal. Compared to the No Action condition in 2025, terminal pollutant burdens were expected to increase due to the forecast increase in intermodal activity. The 2025 pollutant burdens of the roadways around the terminal were forecast to be virtually the same as today. The regional mobile source pollutant burdens were expected to be reduced due to the diversion of freight shipments to rail and the use of cleaner fuels and engines.
- **Community Effects** – Truck traffic on neighborhood streets would have been reduced. Security walls on the north side of the terminal would have buffered its activity, improving the aesthetics of the area.
- **Noise** – No perceptible increase in noise in sensitive areas was expected with planned walls for security purposes, as defined in Section 4.9. Traffic volumes in the terminal area would have increased with improved economic conditions.
- **Cultural Resources** – There would be no indirect effect expected on historic, archaeological or parks/recreational land resources, as presented in Sections 4.13 and 4.14, respectively.
- **Contaminated Sites** – The increased intermodal activity could have caused, over the next 20 years, up to 15 acres of contaminated land (e.g., brownfields) to be reclaimed by private sector development. This could have led to reduced exposure to contamination and improved the quality of stormwater runoff.
- **Water Quality** – As described in Section 4.11, it was expected that paving of the CP/Oak Yard would have improved water quality. Where the project increases stormwater amounts by paving surfaces at terminals that now absorb water, storage would have been engineered into the system (oversized pipes or retention areas) so that the flow rate of stormwater did not increase. Because of the combined sewer system, all water would have been treated before it flowed to the Detroit River. Prevention plans to address accidental spills of hazardous materials would have continued to be maintained by the railroads as required by the federal government. Reclaiming up to 15 acres of potentially contaminated properties (e.g., brownfields) was possible.

The results of the conditions presented above indicated an adverse effect due to an increase in terminal pollutant burdens in the areas around the terminal. This was associated with increased intermodal activity, compared to the No Action Alternative. Positive developments were forecast in almost all other evaluation areas. On balance, there would have been no disproportionate adverse effect on populations covered by the EJ Executive Order in the CP/Oak terminal area as a result of Alternative 2's proposed terminal expansion. Nonetheless, it was recognized an adverse effect(s) may occur and, if so, it (they) would have been mitigated and/or minimized in the design, right-of-way and construction phases of project implementation, if Alternative 2 had been selected as the preferred alternative.

CN/Moterm Terminal Area – Alternative 2

The analyses presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the CN/Moterm terminal area would have occurred under Alternative 2:

- **Mobility** – Acceptable levels of traffic congestion were expected throughout the roadway network around the terminal, as described in Section 4.1. This conclusion extends to traffic brought by induced growth.
- **Economic Effects** – Over the next 20 years, there would have been almost 400 jobs created in the terminal area due to intermodal terminal activity, as defined in Section 4.5. Growth in local businesses and the tax base were expected.
- **Land Use** – The expected investment by the railroads and government was likely to stimulate, over the next 20 years, industrial/commercial use of up to 20 acres of available land in the terminal area to support intermodal activity, as defined in Section 4.5. This expected intermodal development was consistent with the land use plan of Detroit. Unwanted mixing of land uses should be resisted by applying already-existing provisions in the Detroit Master Plan of Policies and the Ferndale, Highland Park and Hazel Park land use plans.
- **Air Quality** – Analyses presented in Section 4.8 indicated no violations of CO standards were expected in the areas around the terminals. Compared to the No Action condition in 2025, terminal pollutant burdens were expected to increase due to the forecast increase in intermodal activity. The 2025 pollution burden of the roadways around the terminal were projected to be virtually the same as today. The regional mobile source pollutant burdens were expected to be reduced due to diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – Up to 35 acres of Fairgrounds property would have been leased for terminal activity. Truck traffic on neighborhood streets would have been reduced. Walls for security on the east side of the terminal, south of Eight Mile Road, would have buffered its activity. The gravel area at the Fairgrounds would have been paved, reducing the effects of dust on nearby areas.
- **Noise** – No perceptible increase in noise in sensitive areas was expected with planned walls for security purposes, as defined in Section 4.9. Traffic volumes in the area would have increased with improved economic conditions.
- **Cultural Resources** – There would have been no effect on historic and archaeological resources expected, but up to 35 acres of State Fairgrounds property would have been leased for intermodal terminal activity. In the past, about 10 acres of Fairgrounds property was used for this purpose by Canadian National Railroad. Information on this issue was presented in Sections 4.13 and 4.14, respectively.
- **Contaminated Sites** – The increased intermodal activity would have caused, over the next 20 years, up to 20 acres of contaminated land (e.g., brownfields) to be

reclaimed by private sector development. This could have led to reduced exposure to contamination and improved the quality of stormwater runoff.

- **Water Quality** – As described in Section 4.11, it was expected that paving the gravel area of the Fairgrounds to be used for intermodal terminal development would have improved water quality. Where the project increased stormwater amounts by paving surfaces at terminals that now absorb water, storage would have been engineered into the system (oversized pipes or retention areas) so that the flow rate did not increase. Because of the combined sewer system, all water would have been treated before it flowed to the Detroit River. Prevention plans to address accidental spills of hazardous materials would have continued to be maintained as required by the federal government. Reclaiming up to 20 acres of potentially contaminated properties (e.g., brownfields) was possible.

The results of the conditions presented above indicated an adverse effect due to an increase in terminal air pollutant burdens. This was associated with increased intermodal activity compared to the No Action Alternative. Also, there would have been an adverse effect as up to 35 acres of protected 4(f) recreational land would have been used for intermodal terminal expansion. Positive developments were forecast in almost all other evaluation areas. On balance, there would have been no disproportionate adverse effect on populations covered by the EJ Executive Order in the CN/Moterm terminal area as a result of Alternative 2's proposed terminal expansion. Nonetheless, it was recognized an adverse effect(s) might occur and, if so, it (they) would have been mitigated and/or minimized in the design, right-of-way and construction phases of project implementation, if Alternative 2 had been selected as the Preferred Alternative.

Alternative 3: Consolidate All Four Class I Railroads' Intermodal Activity at Livernois-Junction Yard Area

The analysis presented throughout this document, the results of which are summarized in Tables 4-40 and 4-41, indicate the following indirect impacts for the Livernois-Junction Yard/CP-Expressway terminal area would have occurred under Alternative 3:

- **Mobility** – There would have been acceptable levels of traffic congestion throughout the roadway network around the terminal, except at five intersections. Modifying signal timings at these intersections would have addressed this problem, as presented in Section 4.1. Truck traffic will be reduced on neighborhood streets. Lonyo would have been closed while the Central Avenue crossing of the railroad tracks would have been grade separated, thereby improving the safe movement of traffic around the terminal area. Finally, improving the I-94/Livernois interchange would have improved safe truck movements and also helped reduce truck traffic on neighborhood streets. The acceptable level of service would have remained true with induced growth.
- **Economic Impacts** – Jobs expected to be relocated out of the terminal area due to terminal expansion would have been replaced by more than 2,200 new jobs associated with the investment in intermodal development, over the next 20 years, as defined in Section 4.5. Local business expansion and growth in the local tax base were anticipated.
- **Land Use** – The expected investment by the railroads and government was likely to stimulate, over the next 20 years, industrial/commercial development of up to 120 acres of available land to support intermodal activity, as defined in Section 4.5. This intermodal development activity was consistent with the land use plans of Detroit and Dearborn. Unwanted mixing of land uses should be resisted by applying already-

existing provisions in the Detroit Master Plan of Policies and the Dearborn Master Plan.

- **Air Quality** – Analyses presented in Section 4.8 indicated no violations of CO standards would have been expected in the areas around the terminal. Compared to the No Action condition in 2025, terminal pollutant burdens were expected to increase with the increase in intermodal activity. The roadway burdens were expected to be slightly less than the No Action Alternative because of the removal of traffic through acquisition/relocation from the area around the terminal (64 businesses, 71 single-family residences and 12 apartment units). The regional mobile source pollutant burdens were expected to be reduced due to diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.
- **Community Effects** – Jobs relocated out of the terminal area would have been compensated by an increase of more than 2,200 new jobs stimulated by intermodal investment, consistent with data presented in Section 4.5. Lonyo would have been closed and Central Avenue grade separated from the railroad lines, improving safe flow of vehicles. Truck traffic on neighborhood streets would have been reduced. Walls for security on the north side of the terminal, and part of the south, would have buffered its activity, improving the aesthetics of the area. The terminal would have been paved, reducing the effects of dust on the nearby population.
- **Noise** – No perceptible increase in noise on sensitive areas was expected with planned walls for security purposes, as defined in Section 4.9. Traffic volumes in the terminal area would have increased as economic conditions improved.
- **Cultural Resources** – An adverse effect was expected by removal of the Michigan Box Company building and the Federal Screw Works Factory and potential adverse effects applied to the Markey and Tomms Houses, as defined in Section 4.13, but indirect effects could be positive through the spillover effect of local redevelopment. No effects were forecast on parks/recreational lands, as presented in Section 4.14.
- **Contaminated Sites** – The increased intermodal activity could have caused, over the next 20 years, up to 120 acres of contaminated land (e.g., brownfields) to be reclaimed by the private sector. This could have led to reduced exposure to contamination and improved the quality of stormwater runoff.
- **Water Quality** – As discussed in Section 4.11, it was expected that paving the Livernois-Junction Yard would have improved drainage as the runoff today clogs sewer inlets, which causes standing water. Where the project increases stormwater amounts by paving terminals surfaces that now absorb water, storage would have been engineered in the system (oversized pipes or retention areas) so that the flow rate of stormwater did not increase. Because the combined sewer system, all water would have been treated before it flowed to the Detroit River. Prevention plans to address accidental spills of hazardous materials would have continued to be maintained by the railroads. Reclaiming up to 120 acres of potential contaminated properties (e.g., brownfields) was possible.

The results of the conditions presented above indicated minimal adverse effects and the potential for an overall positive indirect effect.

Alternative 4: The Composite Option

The impacts on the Livernois-Junction Yard and the CN/Moterm terminal, both of which would have been expanded under Alternative 4, are summarized on Tables 4-40 and 4-41. They are very much like those effects reported on for Alternative 3 for the Livernois-Junction Yard and for Alternative 2 for the CN/Moterm terminal. The conclusion again is that there would have been minimal indirect impacts and those would be positive.

Summary of Practical Alternatives

Alternative 3 was viewed as having the most positive effect overall on EJ populations as it generated the most jobs. The pollutant burden for all terminals combined was less than today, as was the roadway burden.

Preferred Alternative – Livernois-Junction Yard

The following indirect impacts will result from the Preferred Alternative.

- ***Mobility – There will be acceptable levels of traffic congestion throughout the roadway network around the terminal, as presented in Section 4.1 of this FEIS. There will be a net increase of approximately 700 trucks a day in 2030 in the terminal area compared to the No Action Alternative. The planned road and gate improvements will split truck traffic between Livernois and Wyoming Avenues, with Wyoming serving an industrial area. Truck traffic will be reduced on neighborhood streets (Central north of Kronk, Livernois south of the terminal entrance gate, and Dragoon south of Dix). Lonyo will be closed, while the Central Avenue crossing of the railroad tracks will be grade separated, thereby improving the safe movement of traffic around the terminal area. Finally, improving the I-94/Livernois interchange will improve safe truck movements and also help reduce truck traffic on neighborhood streets. There will be no impacts on public transit routes.***

- ***Economic Impacts – Jobs relocated out of the terminal area due to terminal expansion will be replaced in the terminal area by more than 1,540 new jobs associated with the investment in intermodal development, over the next 20 years, as defined in Section 4.5 of this FEIS. The new job total is expected to be approximately 4,500 statewide. In the Detroit area, the net new jobs total is forecast at about 2,300. Local business expansion and growth in the local tax base are anticipated.***

- ***Land Use – The expected investment by the government and railroads is likely to stimulate, over the next 20 years, industrial/commercial development of up to 60 acres of available land to support intermodal activity, as defined in Section 4.5 of this FEIS. This intermodal development activity is consistent with the land use plans of Detroit and Dearborn. Unwanted mixing of land uses can and should be resisted by applying already-existing provisions in the Detroit Master Plan of Policies and the Dearborn Master Plan.***

- ***Air Quality – Analyses presented in Section 4.8 of this FEIS indicate no violations of CO standards are expected in the area around the Preferred Alternative. Likewise, no violations of $PM_{2.5}$ or PM_{10} daily or annual standards are anticipated, based on qualitative hot-spot analyses of these two pollutants. Compared to the No Action condition in 2030, terminal pollutant burdens are expected to change. Carbon monoxide and particulate matter are expected to decrease, while the other pollutants are expected to increase with the increase in intermodal activity. The roadway burdens are expected to be about the same as the No Action Alternative because of the removal of traffic through acquisition/relocation from the area around the terminal (29 businesses). The regional mobile source pollutant burdens will be reduced due to diversion of freight shipments from truck to rail and the use of cleaner fuels and engines.***

- ***Community Effects – Residential and job losses would be offset by new jobs stimulated by intermodal investment, consistent with data presented in Section 4.5 of this FEIS. Lonyo would be closed and Central Avenue grade separated from the railroad lines, improving safe flow of vehicles. Truck traffic on neighborhood streets would be reduced. Security walls on the north side of the terminal, and part of the south, will buffer its activity, improving the aesthetics of the area. The terminal will be paved, reducing the effects of dust on the nearby population.***

- ***Environmental Justice – There is a history of impacts to minority and low-income populations associated with past industrialization and transportation projects. There will be adverse disproportionate impacts from this project.***

- ***Noise – No perceptible increase in noise on sensitive areas is expected with planned security walls, as defined in Section 4.9 of this FEIS. Traffic volumes in the terminal area will increase as economic conditions improve, but in terms of noise, the changes with DIFT traffic are inconsequential compared to background traffic. The exception is that redirecting truck traffic on Livernois away from the area south of the entry gate and closing the existing gate, at Dix/Waterman, will cut truck traffic on south Livernois and Dragoon to a noticeable extent, so that noise levels will be perceptibly lower.***

- ***Cultural Resources – An adverse effect is expected by removal of the Michigan Box Company building, as defined in Section 4.13, but indirect effects could be positive through the spillover effect of local redevelopment.[48] No effects are forecast on parks/recreational lands, as presented in Section 4.14 of this FEIS.***

- ***Contaminated Sites – The increased intermodal activity could cause, over the next 20 years, up to 60 acres of contaminated land (e.g., brownfields) to be reclaimed by the private sector. This could lead to increased, but less polluted, water runoff.***

- ***Water Quality – As discussed in Section 4.11 of this FEIS, it is expected that paving the Livernois-Junction Yard will improve drainage as the runoff today clogs sewer inlets, which causes standing water in railroad viaducts on Lonyo, Central and Livernois. The standing water sometimes causes these roads to be impassable. Where the project increases stormwater amounts by paving terminal surfaces that now absorb water, surface runoff will be directed to an engineered onsite collection site to ensure that future flow rates do not increase. Because of the combined sewer system, all water will be treated before it outfalls to the Detroit River. Prevention plans to address accidental spills of hazardous materials will continue to be maintained by the railroads. Reclaiming up to 60 acres of potential contaminated properties (e.g., brownfields) is possible, as noted above.***

- ***Farmland, Open Space, Threatened and Endangered Species, Soils – There will be no indirect effects on these resources.***

- ***Visual Effects – The improved visual effect of the buffering of the Detroit Livernois Yard could have a spillover effect in the neighborhood.***

- ***Energy – There will be long-term benefits from the increased conversion of freight hauling to rail.***

The results of the conditions presented above indicate long-term effects will be positive.

[48] The State Historic Preservation Officer (SHPO) will review the security wall across from the house at 6332 Kronk.

It is recognized that, over time, undesirable environmental features have accumulated from industrialization and related transportation projects. Some have existed for many years. Public resources to address many of these conditions have been lacking. The DIFT project is envisioned as a way for public and private sector investments to bring some measure of improvement to existing rail activity and the affected population, knowing that activity will expand in the future with or without the project. On balance, the investment and improvements of Action Alternatives is seen to have beneficial indirect effects on to these areas compared to the No Action Alternative.

4.17.1 Cumulative Effects

The most significant past, present and reasonably foreseeable future sections that affect each of the terminal areas are summarized here (Tables 4-42 – Practical Alternatives and 4-43 – Preferred Alternative):

Livernois-Junction Yard/CP Expressway Terminal Area

The trend towards the urbanization of this terminal area is directly linked to the elaboration of an existing railroad routing coupled with the opening of Michigan's northern mineral ranges beginning in the 1850s. In 1863, the Grand Trunk Union Depot passenger station was built. The Michigan Central passenger station, on West Vernor Highway south of Michigan Avenue, was finished in 1909, immediately following the railroad tunnel to Windsor. The Ambassador Bridge was opened in 1928.

Construction of I-75 began in 1962 and was completed in 1972. It cuts through the Livernois-Junction Yard/CP Expressway terminal area. I-94 was completed between the mid-1950s and early 1960s through the Livernois terminal area. I-96 connects with both I-94 and I-75 in the terminal area. These freeways are considered intrusions on otherwise tightly-knit neighborhoods.

The primary factor driving development in the southwest area of Detroit/east Dearborn was the creation of Ford Motor Company's Rouge Plant in 1918/1919. Housing development in the terminal area bounded by Livernois (east), Michigan (north), Wyoming (west), and Dix/West Vernor (south) is dated primarily between 1900 and 1929. But, since its heyday, this part of Detroit, and all of the City, have been affected by outmigration of corporations, then people. The globalization of businesses, typified by such pacts as the North American Free Trade Agreement (NAFTA), has fueled that change. Notable exceptions are Ford Motor Company's $2 billion investment in re-engineering its Rouge Plant and General Motors' move to Downtown Detroit.

Nonetheless, ongoing revitalization in the area includes:

- Bagley Housing Condominium Development.
- Continued redevelopment along Vernor Highway, including the Bowtie area at the Vernor/Livernois Avenue intersection.
- Continued housing stabilization due to code enforcement and related activities.
- Housing development in east Dearborn east of Wyoming served by Roberts Street.
- A new Museum of Arab Culture opposite the Dearborn City Hall.

Table 4-42
Summary of Cumulative Effects – All Action Alternatives
Alternative 2: Improve-Expand
Alternative 3: Consolidate
Alternative 4: Composite of Alts. 2 and 3

Terminal/ Alternative / Effects	All Terminals	Livernois-Junction	CP/Oak	CN/Moterm
	No Action	Alternatives 2, 3 and 4	Alternative 2	Alternatives 2 and 4
Mobility	• Normal, non-DIFT traffic increases. Truck traffic continues to use neighborhood streets. • A West Detroit, Junction project supports Amtrak. • Detroit River International Crossing offers alternative to Ambassador Bridge. and reduces truck traffic on Livernois/Dragoon.	• No negative effect of congestion on major arteries or local streets unless Jobs Tunnel follows intermodal relocation.	• No negative effect of congestion on major arteries or local streets.	• No negative effect of congestion on major arteries or local streets.
Economic Impacts	• Virtually no change in job/economic trends. • Michigan Ave development support redevelopment.	• Local business expansion in several sectors is expected. • Increase in local jobs is expected with greater income levels and buying power. • Growth in tax base is expected.	• Local business expansion in several sectors is expected. • Increase in local jobs is expected with greater income levels and buying power. • Growth in tax base is expected.	• Local business expansion in several sectors is expected. • Increase in local jobs is expected with greater income levels and buying power. • Growth in tax base is expected.
Land Use	• Maintains existing land use and development patterns.	• Land use changes due to improved economic stimulus. • Unwanted mixing of land uses must be resisted by applying Detroit Master Plan of Policies.	• Land use changes due to improved economic stimulus. • Unwanted mixing of land uses must be resisted by applying Detroit Master Plan of Policies.	• Land use changes due to improved economic stimulus. • Unwanted mixing of land uses must be resisted by applying Detroit Master Plan of Policies.
Air Quality	• Pollution reduced by cleaner engines and fuel.	• Increase in development will possibly increase local pollution but emissions will decrease faster than travel increases with no adverse effect expected.	• Increase in development will possibly increase local pollution but emissions will decrease faster than travel increases with no adverse effect expected.	• Increase in development will possibly increase local pollution but emissions will decrease faster than travel increases with no adverse effect expected.
Community Effects	• Industrial/commercial uses will continue to be mixed with residential uses. • Continued rail/vehicle conflicts at Central and Lonyo.	• Ripple-wave development may create opportunities for use of underused residential parcels. • New local development may lead to unwanted mixing of uses unless already-existing provisions in Detroit Master Plan of Policies and Dearborn Land Use Plan are strictly applied.	• Ripple-wave development may create opportunities for use of underused residential parcels. • New local development may lead to unwanted mixing of uses unless already-existing provisions in Detroit Master Plan of Policies are strictly applied.	• Ripple-wave development may create opportunities for use of underused residential parcels. • New local development may lead to unwanted mixing of uses unless already-existing provisions in Detroit Master Plan of Policies and Ferndale, Highland Park and Hazel Park Land Use Plans are strictly applied.
Noise	• No perceptible increase due to intermodal terminal activity.	• Traffic volumes will increase. Proper location of growth away from sensitive areas will avoid adverse noise impacts.	• Traffic volumes will increase. Proper location of growth away from sensitive areas will avoid adverse noise impacts.	• Traffic volumes will increase. Property location of growth away from sensitive areas will avoid adverse noise impacts.
Cultural Resources	• No effects expected.	• Historic districts/properties may experience effects that may be adverse if local controls are not applied or benefit from positive spillover effect with redevelopment.	• Historic districts/properties may experience effects that may be adverse if local controls are not applied or benefit from positive spillover effect with redevelopment.	• Historic districts/properties may experience effects that may be adverse if local controls are not applied or benefit from positive spillover effect with redevelopment.
Contaminated Sites	• Reclaiming properties now affected by hazardous materials is expected to have a positive effect.	• Reclaiming properties now affected by hazardous materials is expected to have a positive effect.	• Reclaiming properties now affected by hazardous materials is expected to have a positive effect.	• Reclaiming properties now affected by hazardous materials is expected to have a positive effect.
Water Quality	• Maintains status quo.	• Increased development could lead to more impervious surface runoff and pollutant load. It is expected available infrastructure will handle cumulative development but no certainty exists.	• Increased development could lead to more impervious surface runoff and pollutant load. It is expected available infrastructure will handle cumulative development but no certainty exists.	• Increased development could lead to more impervious surface runoff and pollutant load. It is expected infrastructure will handle cumulative development but no certainty exists.

Source: The Corradino Group of Michigan, Inc.

Table 4-43
Summary of Cumulative Effects – Preferred Alternative

Terminal/ Alternative / Effects	Livernois-Junction Preferred Alternative	CP/Oak Preferred Alternative	CN/Moterm Not Part of Preferred Alternative
Mobility	• No negative effect of congestion on major arteries or local streets. Ambassador Gateway project will reduce trucks on local streets in SW Detroit. • A West Detroit, Junction project supports Amtrak. • Detroit River International Crossing offers alternative to Ambassador Bridge. and reduces truck traffic on Livernois/Dragoon.	• Oak Terminal reverts to non-intermodal rail use. No negative effect of congestion on major arteries or local streets.	• Moterm not part of Preferred Alternative. Normal, non-DIFT traffic increases. Truck traffic continues to use neighborhood streets.
Economic Impacts	• Local business expansion in several sectors is expected. • Increase in local jobs is expected with greater income levels and buying power. • Growth in tax base is expected. • Michigan Ave development support redevelopment.	• No local terminal area effects of significance are expected.	• No local terminal area effects of significance are expected.
Land Use	• Land use changes due to improved economic stimulus are expected. • Unwanted mixing of land uses must be resisted by applying Detroit Master Plan of Policies.	• Maintains existing land use and development patterns.	• Maintains existing land use and development patterns.
Air Quality	• Changes at local industry will improve air quality. • Increase in development might possibly increase local pollution relative to No Action Alternative, but emissions will decrease faster than travel increases, with no adverse effect expected.	• Oak Terminal reverts to non-intermodal rail use, reducing truck traffic and improving local air quality due to cleaner fuels and engines.	• Pollution reduced by cleaner engines and fuel.
Community Effects	• Ripple-wave development may create opportunities for use of underused residential parcels. • New local development might lead to unwanted mixing of uses unless already-existing provisions in Detroit Master Plan of Policies and Dearborn Land Use Plan are strictly applied.	• Status quo maintained, no cumulative effects anticipated.	• Virtually no change in community effects, unless sponsor is found for regional park at Fairgrounds.
Noise	• Project will divert/reduce trucks from Central, and Livernois/Dragoon, reducing noise levels there and shield sensitive areas from rail yard noise. • Traffic volumes will increase as economic conditions improve. Proper location of growth away from sensitive areas will avoid adverse noise impacts.	• Status quo maintained, no cumulative effects anticipated.	• No perceptible increase due to intermodal terminal activity.
Cultural Resources	• Project support for economic redevelopment will have positive effect on rehabilitation of historic districts/properties, if local preservation controls are applied.	• Status quo maintained, no cumulative effects anticipated.	• No effects expected.
Contaminated Sites	• Reclaiming properties now affected by hazardous materials is expected to have a positive effect.	• Status quo maintained, no cumulative effects anticipated.	• No cumulative effects anticipated.
Water Quality	• Increased development could lead to more impervious surface runoff and pollutant load. It is expected available infrastructure will handle cumulative development but no certainty exists. • Paving yard will reduce surface runoff, which clogs sewers.	• Status quo maintained, no cumulative effects anticipated.	• No cumulative effects anticipated.
Visual Effects	• Potential spillover effect from buffer around yard.	• Status quo maintained, no cumulative effects anticipated.	• Status quo maintained, no cumulative effects anticipated.
Energy	• Improved efficiencies from conversion of some freight shipments from truck to rail are expected.	• Status quo maintained, no cumulative effects anticipated.	• Status quo maintained, no cumulative effects anticipated.

Source: The Corradino Group of Michigan, Inc.

- Expansion of Truck City in an area bounded by Michigan, Southern, Wyoming and Stecker.

- Potential revitalization of Michigan Central Depot to Detroit police headquarters and other office space.

- Proposed west Riverfront Development.

- Potential revitalization of Tiger Stadium.

- Proposed housing along Michigan Avenue, east of West Grant Boulevard.

- Proposed greenway development at Romanowski Park.

Infrastructure developments include:

- A combined sewage overflow facility at Patton Park.

- A proposed conversion by a private venture of the Detroit-Windsor Railroad tunnels to truck and construction of a new rail tunnel.

- An improved connection between the Ambassador Bridge and the interstate highway system.

- A possible new border crossing.

- Rehabilitating I-94.

- Potential passenger rail service between Detroit and Ann Arbor as well as Metro Airport passing through the Livernois-Junction Yard area.

- Possible high-type transit (bus rapid transit or light rail are potential examples of improvements) in almost one dozen corridors, including along Michigan Avenue and Fort Street within the terminal area.

The future trend of development in the Livernois-Junction Yard/CP Expressway terminal area is summarized in the City of Detroit Master Plan of Policies, which views the area as follows:

> *"Southwest Detroit has two outstanding economic characteristics: an exceptional concentration of very heavy industry, and a unique convergence of freight transportation modes. Weaknesses of the Sector relate to economic obsolescence in both the industrial and commercial plant. Strengths of the area include the Detroit River as a unique attraction, the fixed nature of the transport infrastructure, the availability of many sound industrial buildings, and the shopping habits of many local residents favoring neighborhood stores.*
>
> *"Detroit's major concentration of ports, rail facilities, truck terminals, pipelines, international crossings and associated or support facilities and organizations occurs in the Southwest Sector. This remains unchanged despite the serious and continuing erosion of the Sector's manufacturing base. Only to a limited extent can changing technology, changing corporate ownership patterns, or other evolutionary factors disperse southwest Detroit's highly significant concentration of freight facilities. In fact, prevailing economic forces actually favor continued concentration.*

"The Southwest Sector, therefore, will remain an area of primary economic importance, and industrial activities, within the limits of sound planning and environmental protection.

"Keys to the renewal of the Southwest area will include an improved education system aimed at specific needs of the residents (including career training and the re-education of adults), a safe, secure, and healthy environment, good recreational facilities, and improved public transportation."

The Dearborn Master Plan states the following:

"The Dearborn master plan proposes continuation of an extensive belt of general industrial land which follows the railroad lines along the entire eastern side of Dearborn. Within this large industrial corridor are located the Ford Motor Company, Chrysler Corporation, American Blower Company, the Detroit Water Board, and many other large industrial installations. The only exception to this large industrial corridor on the city's east side are the older residential neighborhoods, which exist in the vicinity of Dix Road and Wyoming Avenue. The Detroit master plan proposes a similar band of general industrial use along Detroit's boundary with Dearborn. Adjacent to the corresponding Detroit industrial corridor are older residential neighborhoods. The adjoining Dearborn and Detroit industrial areas form one of the major heavy manufacturing corridors in southeast Michigan. The continued vitality of this industrial corridor will depend on the need to rebuild and improve the obsolete I-94 Industrial Freeway and the need to introduce newer forms of multi-modal transportation. The railroad line which previously served that portion of the industrial corridor between Ford Road and Tireman Avenue has been recently abandoned. The Industrial Freeway portion of Interstate-94 is an antiquated expressway which was never designed to carry the high volumes of traffic which it now carries. The interface of this expressway with Dearborn's major street pattern and the design of the ramping system need to be completely redesigned and rebuilt to serve modern needs. Along its southeast boundary, Dearborn and Detroit share Patton Park, a major urban park, which is adjacent to the Woodmere Cemetery in Detroit. The park and cemetery are very compatible adjoining land uses to the older residential neighborhoods which exist in Dearborn in the Dix Road/Wyoming area.

"Both the Dearborn and Detroit master plans indicate a continuation of lower-density single-family neighborhoods on both sides of Tireman Avenue on Dearborn's northernmost boundary. Both Dearborn and Detroit indicate a strip commercial development in their master plans along the common boundary which they share along Greenfield Road. In general, the City of Detroit's master plan indicates low-density single family development throughout those neighborhoods which are north of Ford Road. There are no problems of land use compatibility between the two cities."

CP/Oak Terminal Area

The Detroit, Lansing & Lake Michigan Railroad was completed across the terminal area from east to west in 1871. In 1891, the line was merged with the Flint & Pere Marquette Railroad, which opened a spur-line to the southwest Detroit manufacturing center at Delray. This area, like all others in Detroit, experienced in the last 30+ years a significant outmigration of businesses, jobs and, then, population. As noted earlier, the globalization of business has had a major effect on this place which was once known as "The Arsenal of Democracy." The construction of expressways fostered outward-moving development in the second half of the 20th century. The Southfield Freeway (M-39) connecting I-94 to Eight Mile Road (M-102) was completed between

Schoolcraft and Six Mile Road in 1963. The I-96 connector from I-75 to I-275 was completed in 1975.

Post-1910 land use patterns were directly influenced by Detroit's industrial growth. During the succeeding decades, and through the start of World War II, the entirety of the CP/Oak terminal area was rapidly subdivided for housing and small industry. The process of industrial development was further heightened during World War II and the immediate post-war period. In the 1947 Detroit Planning Commission land use report, the CP/Oak terminal area was identified as being in the fastest growing new industrial corridors that ribboned the city along its extended network of railroads. But, development in the area slowed considerably. Now it is largely focused in the commercial revitalization of Grand River Avenue and continued stabilization of housing through code enforcement and related activities.

New infrastructure development in the area is limited, beyond regular maintenance and repair of existing facilities. Long-term plans by SEMCOG include high-type transit facilities/services along Grand River Avenue and in the vicinity of the Southfield Freeway.

Unlike the Southwest Sector of Detroit, the Detroit Master Plan of Policies is silent on the issue of the CP/Oak rail terminal.

It portrays the future land use/development trends in areas around the terminal (known as the West Sector) as follows:

> *"The physical condition of much of the housing, commercial, and industrial development in the West Sector is generally good, a reflection of the fact that much of the area developed after World War II and is one of the new parts of Detroit.*
>
> *"The West Sector has the potential to continue to be one of Detroit's most popular areas for family living. It offers a wide variety of substantial single-family and apartment housing, a very generous amount of recreation facilities, and good accessibility to downtown and suburban shopping and employment."*

CN/Moterm Terminal Area

CN/Moterm has direct access to two interstates: I-696 running east/west and I-75 running north/south. Primary exits along I-696 that serve the area include Woodward Avenue (exit 16), Schaefer Highway (exit 14), and I-75 (exit 18). Primary exits along I-75 that serve the area include Nine Mile Road (exit 60), Eight Mile Road (exit 59), and Six Mile Road (exit 57). The area is also served by State Highway 1 (Woodward Avenue), linking downtown Detroit with Pontiac and by State Highway 102 (Eight Mile Road).

The 1905 placement of the Michigan State Fairgrounds on the edge of Wayne County's northern boundary with Oakland County established the facility in the rural countryside separating Detroit and Pontiac. Over the next quarter century, growth, emanating out of Detroit, completely changed the surrounding landscape.

The proximity of Ford Motor Company's Highland Park plant was the driving force in urban development throughout north Detroit and the Royal Oak Township area during the first quarter of the 20th century, with development primarily concentrated along Woodward Avenue. The creation of the cities of Highland Park (1918), Hamtramck (1922), and Royal Oak (1921) was shortly followed by the incorporation of the cities of Ferndale (1927), Pleasant Ridge (1928), Berkley (1932), and Huntington Woods (1932).

Throughout the decade following the close of World War I, Detroit's north-end neighborhoods were promoted as areas of housing development for the upwardly mobile, middle class. As a direct result of automotive plant development in the nearby Highland Park and Hamtramck communities, between 1939 and 1945, the number of Oakland County residents employed in local suburban plants jumped from 2,000 to 21,000. In 1955, Ferndale advertised itself as being "on the world's greatest highway," further noting that upwards of 55 percent of the municipal tax value ($45.8 million) was based on business and industrial properties, "…thus insuring stability to the city's financial future". The Grand Trunk Railroad yard (now the CN/Moterm terminal) was described as being "central to the auto centers of Detroit, Pontiac and Flint." The commentary went on to note that,

> "The residential quality of Ferndale has been improved by this industrial growth, for the reason that the industrial district has been confined by the far-sighted authorities to the railroad neighborhood in the eastern part of the city. This control has also expressed itself in the high character of industries located here."[49]

Much of that has changed with the changing competitive environment. For example, Highland Park has experienced the loss to competing communities of its largest employer. Nonetheless, it continues to pursue sustainability.

Major revitalization efforts in the four cities that host the CN/Moterm terminal area (Detroit, Ferndale, Highland Park and Hazel Park) include:

- Planned redevelopment of the southeast corner of Woodward Avenue and Eight Mile Road.
- Proposed development at the State Fairgrounds (e.g., Joe Dumars Field House).
- Planned revitalization of Ferndale's business core and neighborhoods.
- Proposed mixed-use redevelopment of the Hazel Park Race Course.
- Residential and commercial revitalization throughout Highland Park typified by the following projects:
  - ✓ Town Center.
  - ✓ Highland Heights Historic District.
  - ✓ Medbury-Grovelawn Historic District.
  - ✓ Neighborhood commercial development along Hamilton Avenue.
  - ✓ Infill townhome development south of the Davison Freeway.
  - ✓ Industrial revitalization at the Farmer Model-T area.
  - ✓ Industrial development along Oakland Boulevard.

[49] Ferndale City Directory. R.L. Polk and Company, Detroit. 1955.

Major transportation developments in the area include the proposed widening of I-75 throughout Oakland County; the revitalization of the Woodward Avenue/Eight Mile Road intersection; and, high-type transit along corridors like Eight Mile, Woodward Avenue, and Gratiot Avenue.

Future development possibilities for the area around the CN/Moterm terminal are best portrayed in the master plans of each of the four host cities. For Detroit's North Sector, the Master Plan of Policies indicates

> *"The elements most greatly affecting the future of the North Sector are its industrial facilities, its neighborhood systems, and – directly tied to neighborhoods – its housing stock. The Sector's greatest potential lies in the maximization of these three resources.*
>
> *"Industrial areas of the North Sector appear to have excellent potential for continued employment opportunities, for expansion of select areas, and for continued support of the economic base of the City, given the Sector's attributes of location.*
>
> *"Central to the future of the North Sector is its neighborhood systems. The North Sector has many healthy neighborhoods on which to expand; it has just as many neighborhoods with the potential to become just as healthy as any of the best neighborhoods of the Detroit metropolitan area.*
>
> *"The North Sector is a major trucking center, second in importance only to the Southwest Sector (among Detroit's 11 planning sectors). Rail transportation, however, is of less importance to the North Sector, for rail lines mainly serve through traffic. The Sector is not heavily industrialized; there are very few active rail sidings here, and no rail classification yards (areas used for switching and freight trains linking up) or terminals remaining active.*
>
> *"The construction of the planned Light Rail Transit (LRT) system along Woodward will have an important impact on the North Sector. The regional transportation plan calls for the development of a LRT system in the Woodward Corridor from downtown Detroit to the northern suburbs."*

The Ferndale Master Plan cites the following for the area "Southeast of Nine Mile Road and Woodward Avenue:"

> *"The Grand Trunk Railroad property and the surrounding industrial uses are the primary users of land in the Southeast Planning Area.*
>
> - *The industrial land use pattern is proposed for minor expansion in three areas. These include two areas along Bennett between Fair and Westend and Troy south of Nine Mile.*
> - *Along sections of Hilton south of Hazelhurst, a mixture of multiple-family use and office use is proposed. This office and residential redevelopment area would receive the same zoning as is proposed for the Livernois corridor (mixed use residential and office).*
> - *Multiple-family land uses are proposed for: area south of Nine Mile and east of Woodward Avenue; on the west side of Hilton, south of Hazelhurst, also west of Hilton, east of Woodward between Webster and Chesterfield.*
> - *Business redevelopment and expansion is proposed east of Woodward Avenue and north of Eight Mile Road. The consolidation of sites and enlargement of existing uses is discouraged. These increases in land use intensity must meet the same objectives listed*

for the business redevelopment along Eight Mile west of Woodward and the PUD zoning should be considered.

- *Another business area in need of improvement is at Hilton and Nine Mile Road. In addition to business uses, the possibility of locating a station for rail commuters should be explored with other agencies in the Metro area.*

- *For the area east of Wanda between Channing and Chesterfield, uses should be encouraged that function as buffers between the residential uses to the east and the industrial uses to the west. For the industrial sites along Wanda (south of Nine Mile Road) parking, storage and high intensity use areas should be buffered from the residential uses. The buffered areas can be developed by using landscaping, walls, earth berms or fences. Within the Wanda Street rights-of-way more street trees can be planted to help buffer the residential uses from the industrial uses."*

The Hazel Park Master Plan indicates:

"Eight Mile Road Corridor. A major component of the plan for the Eight Mile Road Corridor is to increase the area and depth of parcels to improve their industrial or commercial potential. This will allow for parking areas and a landscape buffer to protect and strengthen residential areas north of the frontage. Closing of Muir Street could be considered in conjunction with significant development proposals. Most of the frontage is planned for corridor business or industrial use which will increase the potential reuse of vacant properties beyond traditional retail or highway commercial. Viable light industrial uses can co-exist with commercial and a more cohesive corridor can emerge with sufficient parcel depth, attractive landscaping, quality site design standards, signage and lighting. The City should remain involved with the Eight Mile Boulevard Association and seek opportunities to coordinate redevelopment plans with regional planning and design proposals for the Eight Mile Road Corridor."

The Highland Park Master Plan indicates:

"Highland Park seeks to re-establish the city as a livable community. Desiring to establish land use policies which will encourage and direct new investment in the city, this Master Plan provides a guide for land use to meet the city's goals. To make Highland Park a desirable and livable community, the city will focus on the following:

- *Improving the city's neighborhoods*

- *Rebuilding the economic base*

- *Creating a better image for the community, which announces that Highland Park is an attractive small town oasis in the urbanized metropolitan area*

- *Revitalizing Woodward Avenue as the city's main street."*

"A strong economic base is critical to the future of Highland Park. While the city has seen new investment in the community, it is important to direct additional investment to the rebuilding of the city's economic base. The city is an attractive business location, accessible to the region and, with the recommended infrastructure improvements, provides opportunities for new development.

"The Master Plan provides for a diversity of business types including larger parcels of ten acres and more for properties in the Oakland corridor, a new business park at the former Ford Model T plant, upgrading of existing business districts (Victor Street and Midland Park areas), and the establishment of a communications corridor in cooperation with Detroit's Focus Hope area.

"Future office and community retail development are encouraged in mixed-use areas in the City Center located on Woodward between the Conrail viaduct and Davison Freeway. These mixed-use areas also could contain housing on upper floors and rear portions of the parcels. In addition, neighborhood amenity retail is encouraged in smaller centers proximate to the residential areas on Hamilton and Woodward.

"It is estimated that implementation of these land use policies over the next decade could create approximately $18 million in annual taxes to the city and a total of nearly 10,000 jobs. With a future residential population of approximately 24,000, the city's tax base could be more supportive of schools and community services."

Cumulative Effect Summary

Based on the past, present and reasonably foreseeable future trends, the following cumulative effects can be anticipated with development of all Action Alternatives in the terminal areas associated with the Livernois-Junction Yard/CP-Expressway terminal, CP/Oak terminal and CN/Moterm terminal (refer to Table 4-42). For the No Action condition, these impacts are a continuation of past trends.

- Mobility: While there will be an increase in traffic due to both the growth in intermodal activity and the stimulated additional development under the Action Alternatives, there are no negative congestion effects expected either on major arteries or local neighborhood streets.

  It should be noted that under Alternatives 3 and 4, where intermodal operations of either three or four railroads are consolidated at the Livernois-Junction Yard, the terminals at CP/Oak and CN/Moterm will continue to be used by the railroads for shipping freight by other means than intermodal. That activity will be associated with a smaller volume of truck traffic than if the terminals were to continue to serve intermodal.

- Economic Impacts: It is expected that local businesses will develop or expand in several sectors related to the growth in intermodal transportation. Likewise, such change will be associated with an increase in local jobs with greater income levels and buying power. This should then help grow the tax base. These expected conditions apply to each of the three terminal areas. But, they will be greater under Alternatives 3 and 4 (i.e., some form of intermodal consolidation) than Alternative 2 (no consolidation) and Alternative 1 (No Action).

- Land Use Changes: Land use changes are expected to accelerate with growth in intermodal transportation and the associated and improved economic stimulus. Such growth could be associated with the mixing of land use types that are unwanted, i.e., industrial/commercial with residential. This can be avoided by local units of government applying already-existing land use/zoning principles, like those in the City of Detroit's Master Plan of Policies and the master plans of Dearborn, Ferndale, Hazel Park and Highland Park.

- Air Quality: Increased development might increase local pollution relative to the No Action Alternative. But, results of the analysis indicate that such increases will not cause standards to be violated if the development is properly located and pollution in almost all cases will be less than today, including cumulative growth. This will happen if government actions are consistent with the planning processes cited earlier and in the appendices to this report.

- Cultural Resources: Historic districts/properties might experience adverse effects from new private sector development associated with the growth in intermodal activity that could occur adjacent to their boundaries if already-existing local government controls are not applied. Conversely they may experience positive spillover effects from redevelopment.

- Community Cohesion: Development stimulated by intermodal activity/investment may create opportunities for use of abandoned residential parcels (the City of Detroit owns thousands of such parcels as a result of tax delinquencies). This development could lead to unwanted mixing of land uses if controls in the master plans of various cities are not implemented. For example, tracts large enough to hold logistics businesses to support intermodal activity could locate along or near the Livernois-Junction Yard, such as the Ward Bakery at Toledo Avenue and West Grand Boulevard. This parcel is tucked in a residential area and should it be allowed to develop, the increased truck traffic will have a negative effect on the community.

- Noise: Traffic volumes and ambient noise levels will increase as economic conditions improve. Negative effects are not expected and can be avoided with care by the developer and local government agencies in locating this increased development away from sensitive uses.

- Water Quality: Increased development could lead to more impervious surface runoff and pollutant load. This could be offset by reclaiming properties now affected by contaminated materials for increased economic activity. Thousands of such properties exist, are abandoned, and have not been remediated. Use of some of the properties by DIFT-related activities will cause remediation which will improve the quality of the runoff into surface and subsurface drainage infrastructure, compared to the No Action condition.

These cumulative effects are those expected in each of the three areas around the intermodal terminals. Broader regional effects are virtually impossible to quantify or locate geographically. But, the possibility exists that, with or without the DIFT, the four Class I railroads will make other improvements on their own (like at interlockers discussed in Section 3.4.1) in the Southeast Michigan region. To the extent any of these require environmental clearances, they will be pursued.

It is also important to recognize what effects may occur in one key regional area: wealth distribution/redistribution, which occurs with shifts in population, employment and tax base. Shifts in tax base occur as land is developed for new housing and businesses. Shifts also occur within existing built-up areas as residents and businesses move. Both processes usually result in less taxable property in older communities that have little undeveloped land and room to grow. That is typically the case in southern Oakland County communities, such as Hazel Park and Ferndale and such Wayne County communities as Dearborn.

Market-driven actions and supporting public policy decisions underlie the dynamics of the wealth distribution pattern in the Detroit-centered region. All of these decisions operate separately from

the Action Alternatives. These dynamics include, as cited by SEMCOG in its report entitled *Land Use Changes in Southeast Michigan, Causes and Consequences*, "…residential segregation by race and income, federal tax subsidies for home mortgage interest and property taxes, school funding and quality, crime and public safety, societal ideals of lifestyle and urban design, constitutional protections of private property rights, infrastructure financing policies, and extent of personal vehicle ownership and use."

The DIFT has the ability to respond to this pattern in a positive way. By building on the transportation and industrial strength of the areas in which intermodal terminals function; by making improvements to push terminal traffic out of residential areas; by creating walls that provide terminal security and reduce noise; by paving surfaces that are unpaved; by creating jobs in the local areas around the terminals; and by preparing/training community residents to be able to take those jobs, the DIFT can have greater positive than negative impacts – direct, indirect and cumulative.

The DIFT can also be measured as a positive proposal by using a number of principles of Governor Granholm's Land Use Leadership Council, which promote use of existing infrastructure in communities to create public-private investments to address economic and other quality-of-life issues. These principles are:

- Supporting efforts to make Michigan cities more livable by expediting the reuse of abandoned properties, controlling blight, encouraging private investment, encouraging mixed-use development, improving transportation options, supporting a full range of housing options, and attracting and retaining residents who can contribute to the viability of our urban core areas.

- Making better use of existing public infrastructure by encouraging public and private investment in already developed areas.

- Creating incentives to encourage interagency and intergovernmental cooperation in addressing land use issues and public investments of more than local concern.

- Encouraging private investment in already developed areas by removing governmental barriers and creating incentives.

- Identifying "commerce centers" where infrastructure is already serving relatively dense populations to guide the future investment of state resources to support private investment and development.

Preferred Alternative – Cumulative Impacts

Cumulative impacts are summarized in Table 4-43.

For the Preferred Alternative, the conclusions related to cumulative impacts for Alternative 4 above would apply as they relate to the Livernois-Junction Yard area for mobility, economic impacts, land use changes, air quality, cultural resources, community cohesion, noise, and water quality. In response to comments on the DEIS, additional information is provided on several of these topics.

- ***Mobility – A West Detroit Junction railroad project will improve Amtrak passenger train movement in Southwest Detroit.***

  Michigan Avenue was recently reconstructed, substantially improving its driving surface and improving travel speeds. MDOT has also been reconstructing Fort Street

from the Ambassador Bridge, south across the Rouge River. The reconstruction of the bridge over the Rouge River will require a two-year detour of vehicular, bicycle and pedestrian traffic to the Dix Road bridge to the north, beginning in 2009.

The Ambassador Bridge Gateway Project will complete in 2009 direct access between the Ambassador Bridge and the interstate system. In the past, many trucks lost their way and "wandered" around Southwest Detroit on roads trying to get to or from the Ambassador Bridge. And, one signed truck route goes along Clark Park in Mexicantown. The Gateway Project will substantially reduce the chance trucks will use local streets.

The Detroit International River Crossing (DRIC) project is to provide a new bridge to Canada. The crossing will connect to I-75 between the Rouge River and the Ambassador Bridge. It will "split" the traffic to/from Canada with the Ambassador Bridge. A new crossing to Canada will avoid mobility restrictions between Southeast Michigan and Ontario, Canada.

All of the DRIC Study alternatives under consideration would close the direct connection between I-75 and the Livernois/Dragoon one-way pair that now provides an unwanted conduit for trucks through the Southwest Detroit neighborhood to points north, including the Livernois-Junction Yard.

Whether or not the DRIC Study produces a new crossing, the Ambassador Bridge owners are pursuing construction of a replacement span. It would directly connect to the plazas in the U.S. and Canada that are being expanded.

The synergistic effects of the Gateway Project, and a new river crossing to Canada, be it a replacement Ambassador Bridge and/or a new government-sponsored project, or both, on the DIFT are few. Little intermodal truck activity comes across the Detroit-Windsor border. This is known from observation and documented in information released by FHWA in 2006 (based on 2002 data), which found that the combination of "truck-rail intermodal" and "other intermodal" represents ony one fourth of one percent of weight (in tons) flowing across the border at Detroit.[50] The biggest change that could be brought by the DRIC would be closing the Livernois-Dragoon interchange with I-75. This interchange closure would reinforce the DIFT's intention to focus truck traffic on I-94 to Livernois and Wyoming Avenue, which will keep truck traffic out of neighborhoods. Planning is advancing on upgrading the plaza of the Blue Water Bridge at Port Huron. This change would have a negligible effect on the Detroit-Windsor area, including the DIFT project.

- ***Economic Impacts - It is expected the reconstruction of Michigan Avenue by MDOT will foster economic redevelopment there.***

  The Ambassador Bridge Gateway Project will divert truck traffic from Fort Street, as direct ramp connections to the interstates are being provided. Today, all trucks coming into the U.S. get to I-75 southbound via Fort Street. Some of these trucks likely take advantage of the numerous truck-oriented businesses along Fort Street. These businesses will see fewer trucks passing by.

[50] Data from the Freight Analysis Framework (FAF) as presented by FHWA February 13, 2006, in Lansing. For information on the FAF see http://ops.fhwa.dot.gov/freight/freight_analysis/faf/

Local business expansion in several sectors is expected with increased jobs and tax base.

- ***Land Use – Without the DIFT project there is no indication the pattern of industrial/trucking/scrap yard uses will change. Though residential rehabilitation is occurring in Southwest Detroit, this is not the case nearer the Livernois-Junction Yard. Several homes on the north side of John Kronk originally counted as relocations in the DEIS have burned and are no longer standing.***

- ***There is a community sense that appropriately placed vegetation can have a long-term positive land use effect. By providing a buffered "edge" to the railroad terminal, the project will be a better neighbor than the rail yard is today, and help stabilize land uses in the area. There are few such buffers in the area now.***

- ***Air Quality – A number of actions are being taken regionally to improve air quality. Actions related to U.S. Steel, Sverstal Steel and Marathon are noted in the Section 4.8. Dust control plans have been instituted in some instances. The Ambassador Bridge Gateway project will provide direct connections for trucks to the freeway system, eliminating Fort Street as the access to I-75 southbound. The DIFT project promotes the use of rail, rather than roads to move freight and reduce both on-terminal and local roadway emissions. Insofar as increased development accompanies these projects individually and/or collectively over time, SEMCOG has forecast that cleaner engines and fuel will outstrip increased travel.***

- ***Over the long term, increasingly stringent EPA controls announced in March 2008 on new and remanufactured locomotives (remanufacturing normally occurs every five to 15 years) and on locomotive idling will substantially improve CO2, NOx and PM emissions.***

- ***Both MDOT and the railroads have made commitments to try to improve air quality. See the Green Sheet at the end of Section 5.***

- ***Community Effects – Ripple-wave development may create opportunities for use of underused residential parcels.***

- ***New local development might lead to unwanted mixing of uses unless already-existing provisions in Detroit Master Plan of Policies and Dearborn Land Use Plan are strictly applied.***

- ***Noise – Project will divert/reduce trucks from Central, and Livernois/Dragoon, reducing noise levels there and shield sensitive areas from rail yard noise.***

- ***Traffic volumes will increase as economic conditions improve. Proper location of growth away from sensitive areas will avoid adverse noise impacts.***

- ***Cultural Resources – Project support for economic redevelopment will have positive effect on rehabilitation of historic districts/properties, if local preservation controls are applied.***

- ***Contaminated Sites – Reclaiming properties now affected by hazardous materials is expected to have a positive effect.***

- ***Water Quality – Increased development could lead to more impervious surface runoff and pollutant load. It is expected available infrastructure will handle cumulative development but no certainty exists.***

- ***Paving yard will reduce surface runoff, which clogs sewers.***

- ***Farmland, Open Space, Threatened and Endangered Species, Soils – There will be no indirect effects on these resources.***

- ***Visual Effects – The improved visual effect of the buffering of the Detroit Livernois Yard could have a spillover effect in the neighborhood.***

- ***Energy – There will be long-term benefits from the increased conversion of freight hauling to rail and support of measures to improve Amtrak's operations.***

4.18 Emergency Response Controls

Each of the Class I railroads operating intermodal freight terminals in Southeast Michigan has Emergency Response Plans in place to address transportation incidents involving U.S. DOT-regulated materials (hazardous materials, hazardous substances and hazardous wastes) and oils. These plans prescribe procedures to respond to spill incidents from derailments, leaks, fuel spills, etc.

Regulations governing Emergency Response Plans include OSHA's (the U.S. Occupational Safety and Health Administration) Hazardous Waste Operations and Emergency Response (HAZWOPER) requirements, U.S. DOT's 49 CFR 130, the Oil Pollution Prevention and Response regulations (40 CFR Part 112) and other programs of the Clean Water Act. Components of Emergency Response Plans include pre-emergency planning coordination with local agencies; assignment of personnel, their roles and responsibilities; hazard recognition; specialized personnel training; site security and control; emergency notification procedures; spill response equipment; and, emergency medical treatment provisions.

Spill prevention and response at fixed facilities (including railroad terminals) that store quantities of oil and hazardous materials above threshold amounts are addressed with Spill Prevention Control and Countermeasures Plans (SPCC) and Stormwater Pollution Prevention Plans that have been prepared by the railroads. These plans focus on prevention of releases to streams and other water bodies.

These procedures were part of the No Action Alternative and all Action Alternatives, as well.

Preferred Alternative

The procedures listed above apply to the Preferred Alternative.

4.19 Terminal Security

For all Action Alternatives, walls, fencing, other physical barriers, and electronic systems (e.g., sensors, alarms) are part of each Action Alternative to protect areas within an intermodal terminal from unauthorized access. Access control points for personnel and vehicles to move through the terminal boundary lines (such as gates, doors, guard stations, and electronically controlled or monitored portals) are also included in each Action Alternative's design. Measures that will

enhance these boundaries/access points include clear zones on both sides of fences, security lighting, locks, CCTV systems and signage.

While the number of access points will be kept to a minimum, adequate vehicle access points are planned for maintenance and emergency operations. To prevent obstructions within the gate path and protect gate equipment, the design concept includes proper drainage grading; planned gaps in curbs; installation of concrete channels or mow strips below the gate path; and, use of bollards.

Security effectiveness of the perimeter will be enhanced by the provision of clear areas on both sides of the wall to facilitate surveillance and maintenance of the wall and deny cover to vandals and trespassers. Suggested clear distances range from 10 to 30 feet, within which there should be no climbable objects, trees, or utility poles abutting the wall nor areas for stackable crates, pallets, storage containers, or other materials. Likewise, the parking of vehicles along the wall will also be prevented. In addition, landscaping within the clear area will be designed to reduce potential hidden locations for persons, objects, fence damage, and vandalism.

Lighting of the area on both sides of gates, and selected areas of walls, will be provided. Similarly, sufficient lighting will be provided for areas in which a CCTV (closed circuit television) camera is intended to monitor activity. Reduced lighting, or sensor-activated lighting, may be considered in areas which have minimal traffic throughput in the off-peak hours. CCTV monitoring will be considered, particularly for low-traffic gates and maintenance access points that are removed from principal activity areas.

Signage will be posted on certain security boundaries and at selected access points. Signs will be located such that when standing at one sign, the observer will be able to see the next sign in both directions. The use of signage, even in some non-required locations, will provide a deterrent by warning of the boundary as well as for notification of the consequences for violation. Many locations with access control or CCTV equipment may warrant signage for either directional or legal purposes (e.g., “Alarm Will Sound If Opened,” “Authorized Personnel Only,” “Notice: All Activities In This Area Are Being Recorded via CCTV,” etc.).

VACIS (Vehicle and Cargo Inspection Station) is an X-ray-type device that is able to see into containers/trailers to detect any unusual cargo. VACIS systems are now being installed by each of Canadian Pacific and Canadian National Railroads to screen trains on the Canadian side of the international border before they enter the U.S. Consideration by all DIFT participants (public and private) will be given to installing a VACIS system at the Livernois-Junction Yard under Alternatives 2, 3 or 4, if an Action Alternative is chosen for implementation. The allocation of cost would be determined at that time.

Preferred Alternative

The conclusions in the above paragraphs remain true for the Preferred Alternative.

4.20 Terminal Lighting

The CP/Expressway and the CP/Oak terminals are surrounded by railroad tracks, major roadways, industrial properties, and commercial properties. Because of this, no sensitive areas such as residential neighborhoods would have been affected by lighting at those terminals. Directional lighting would have been used at the CN/Moterm terminal, in areas near the residential neighborhood east of the proposed expansion area in Alternatives 2 and 4, and at the Livernois-Junction Yard near residential areas such as along Cabot, Lawndale, and Trenton Avenues, and the area south of Dix Avenue at the central/east ends of the terminal. Nonetheless, it is noted that lighting would have increased at each terminal under Alternatives 2, 3 and 4.

Preferred Alternative

Lighting will increase with the Preferred Alternative for security purposes. To the extent practical, lighting in the area of Cabot, Lawndale, and Trenton Avenues, along east Kronk and the area south of Dix Avenue at the central/east end of the terminal will be directional to minimize glare in these residential areas. There is already street lighting in each of these areas.

4.21 Soils

The former clay pits near the Livernois-Junction Yard will need to be tested to determine what type of soil/materials were used to infill the area. The potential for the existence of contaminated materials causes this need, as defined in Section 4.16.

Preferred Alternative

The above conclusion remains true for the Preferred Alternative.

4.22 Construction Permits

Michigan Department of Environmental Quality permits would have been required for Action Alternatives during the design phase for use of wetlands and stormwater discharges. The construction phasing will dictate the number of permits required. See Section 5.4 for a list of required permits.

Preferred Alternative

The above conclusion remains true for the Preferred Alternative.

4.23 Energy

Energy would be used to construct an Action Alternative. Fuel savings should be realized in the long term due to improved efficiencies in the movement of freight on rail to, from, and within intermodal yards. There will also be improved efficiencies in the movement of freight on trucks to and from intermodal yards adding to fuel savings, consistent with the reduction of vehicle miles of travel in shifting freight from truck to rail (each intermodal rail car is the equivalent of three trucks).

Preferred Alternative

The above conclusion remains true for the Preferred Alternative.

4.24 Implementation Cost

Estimated construction costs (in 2004 dollars) are $170 million for Alternative 2, $458 million for Alternative 3, and $436 million for Alternative 4. Right-of-way/property-related costs are estimated to be $98 million for Alternative 2, $125 million for Alternative 3, and $115 million for Alternative 4. Total estimated project implementation costs are $267 million for Alternative 2, $583 million for Alternative 3, and $551 million for Alternative 4. These costs will be borne by both government and the railroads.

Preferred Alternative

Estimated construction costs for the Preferred Alternative (in 2008 dollars) are $395 million. Community mitigation/enhancement costs add another $11 million. Another $123 million is required for right-of-way and relocation. These costs will be borne by both government and the railroads. The total project cost is $529 million. Accounting for the years in which the dollars will actually be spent means that inflation adds another $121 million for a year of expenditure project cost of $650 million (at an estimated confidence level of 70%).

4.25 The Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

This project is a result of local and regional, as well as statewide comprehensive planning. Present and future freight needs were considered and are reflected in the Preferred Alternative that address the proposed project's purpose and need. It is concluded that the local short-term impacts and use of resources by the Preferred Alternative[51] are consistent with the maintenance and enhancement of long-term productivity for both the local (Southeast Michigan) area and the State of Michigan. Project construction will result in increased use of a more efficient mode – rail – over the long term, compared to the No Action Alternative.

Preferred Alternative

The above conclusion remains true for the Preferred Alternative.

4.26 Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action

To date, the DIFT studies have cost $7.5 million. There would be no additional cost if no government action is taken. Implementation of the Preferred Alternative involves a commitment of a range of natural, physical, human, and fiscal resources. Land used for expansion/ construction of a proposed terminal is an irreversible commitment of land.

Considerable amounts of fossil fuels, labor, and construction materials such as cement, aggregate, and bituminous material will be expended for this project. Additionally, large amounts of labor and natural resources will be used in the fabrication and preparation of construction materials. Their use will not have an adverse effect upon the supply.

Construction of the Preferred Alternative will require a substantial expenditure of state, federal, local and private funds. The commitment of these resources will result in an improved freight transportation system, providing improved efficiency, safety, and savings in time. These are expected to outweigh the commitment of these resources.

Preferred Alternative

The above conclusions remain true for the Preferred Alternative.

[51] In the context of a major transportation improvement, short-term use of the environment means use of resources such as fossil fuels, building materials, petroleum, and the like, for a few years, not for an indefinite period.