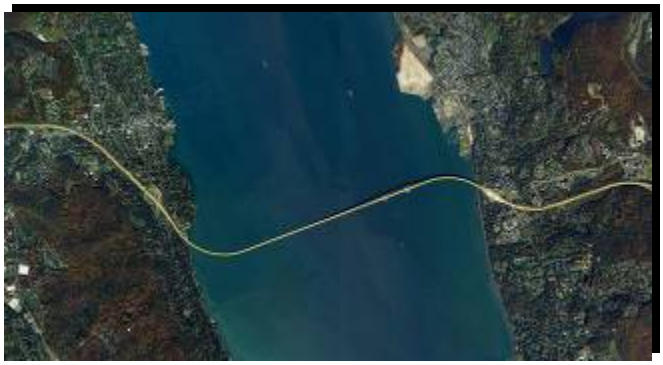
TAPPAN ZEE BRIDGE/I-287
ENVIRONMENTAL REVIEW

New York State Department of Transportation
Metropolitan Transportation Authority Metro-North Railroad
New York State Thruway Authority

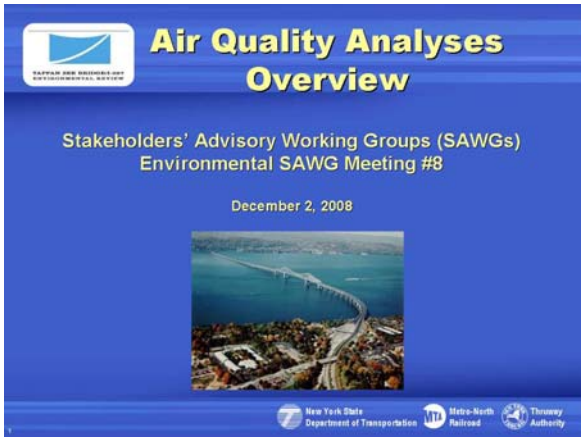
Presentation

Stakeholders' Advisory Working Groups (SAWGs)
Environmental SAWG Meeting #8

Tappan Zee Bridge/I-287 Corridor
Environmental Review



December 2, 2008



Slide 1

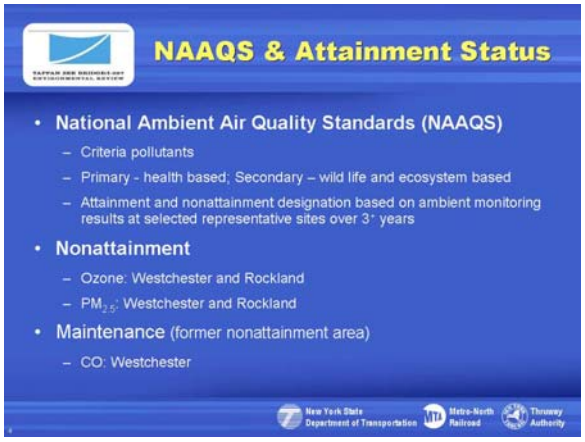
This presentation focuses on the availability air quality background information and impact analysis approaches to be used for the EIS study.

Slide 2

The topics to be covered include pollutants, existing background data, potential project-related emitting sources, general emissions trends, analysis requirement and approaches.

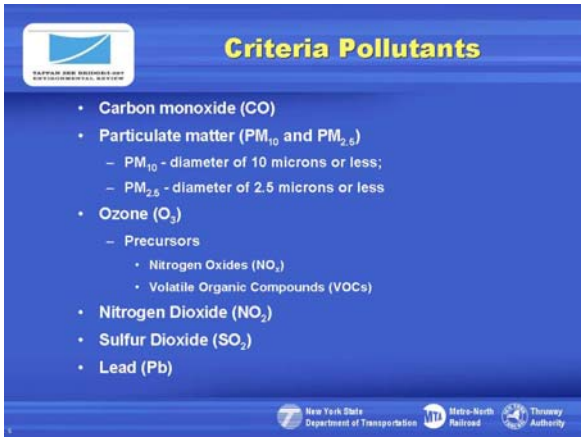
Slide 3

This first topic discusses the pollutants that will be addressed in the EIS.



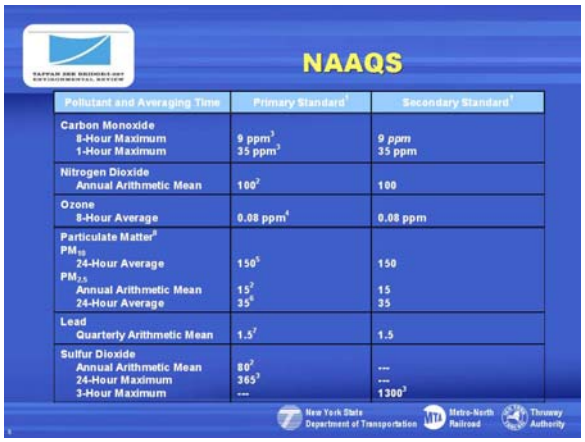
Slide 4

Clean Air Act established ambient standards for six criteria pollutants to protect human health, wild life, etc. The country has been broken down into various air quality control regions that are designated as either in attainment or nonattainment with respect to these standards. Some areas have been re-designated as attainment after being initially designated as nonattainment and are now called maintenance areas.



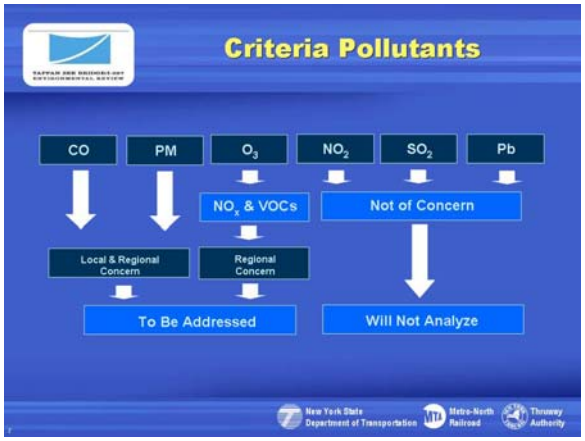
Slide 5

This slide provides the names of specific criteria pollutants and precursors of ozone.



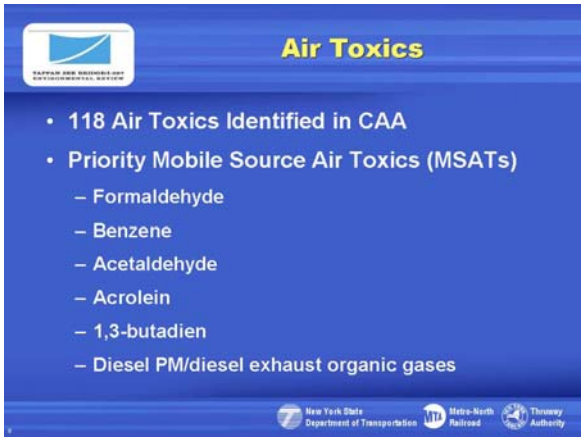
Slide 6

Specific ambient standards for criteria pollutants were established in two categories. Our focus in the study will be on the human health-based primary standards. But primary standards are mostly the same as the secondary standards. These standards were established over various time averaging periods.



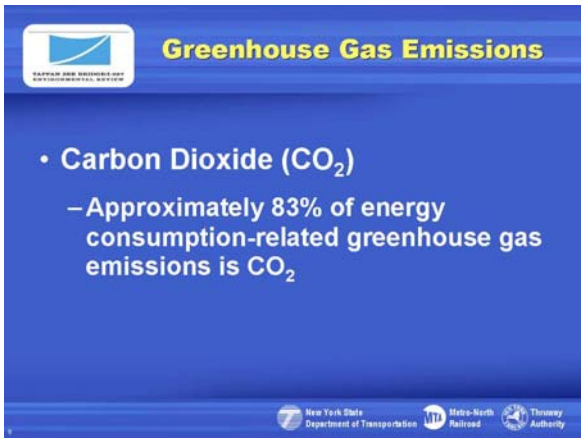
Slide 7

CO, PM, and O_3 precursors (NO_x and VOC) are of concern because they are released from mobile and construction sources. NO_2 and SO_2 are not of concern for the project because they are mainly released from stationary smoke stacks. Pb is not of concern because it has been eliminated through mandated use of unleaded fuels for mobile sources.



Slide 8

Clean Air Act also identifies 118 air toxic pollutants in addition to criteria pollutants. Among them, six pollutants are considered the main concerns associated with mobile sources.

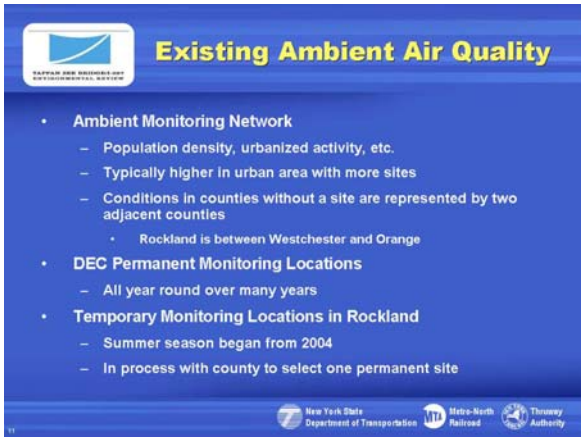


Slide 9

The increasing concern about global warming results in a concern over greenhouse gas emissions. Although this is an evolving new issue and the EIS will address these emissions.

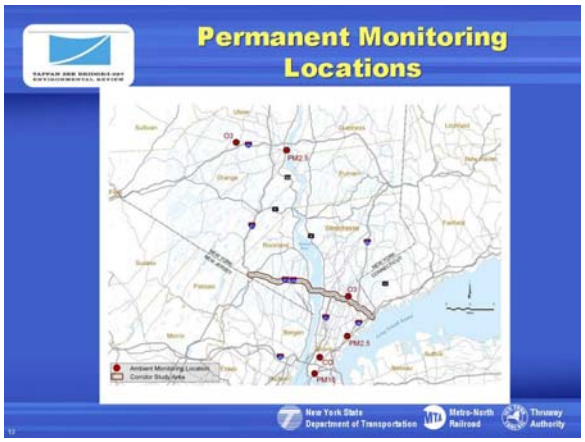
Slide 10

The next topic presented is air quality conditions.



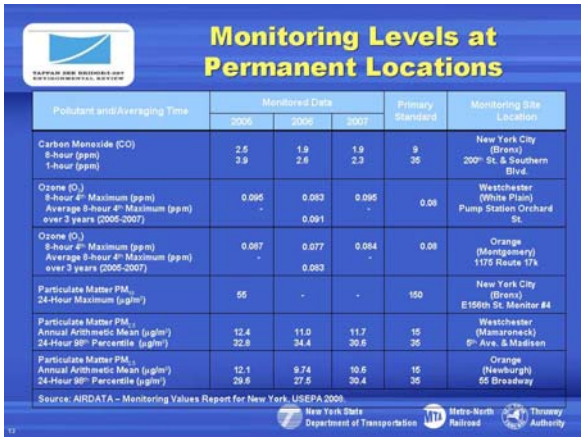
Slide 11

In the past, air quality data was collected for each project. However, such data did not show long-term trends and given the cost of long-term data collection, data are not collected on a project basis. Instead, State monitoring data from sites close to the project area are used for describing existing air quality conditions.



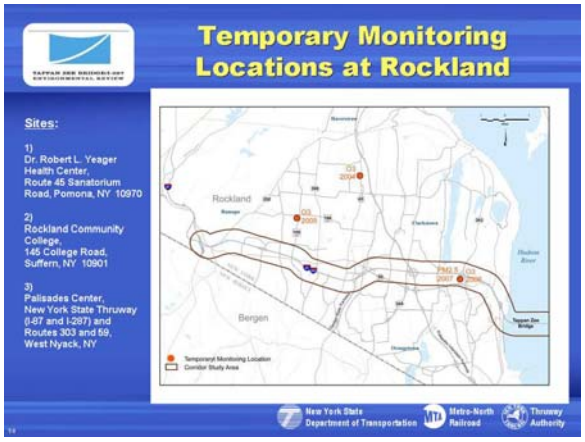
Slide 12

The data from the closest permanent monitoring stations will be used as the background conditions for the project area. These stations include those in Westchester, Orange, and Bronx Counties.



Slide 13

This table shows the monitored levels in past three years at those closest permanent stations. Ozone levels show some exceedances and PM2.5 levels are close the NAAQS. For analysis purposes, these levels can be used as the conservative background conditions for Rockland County.

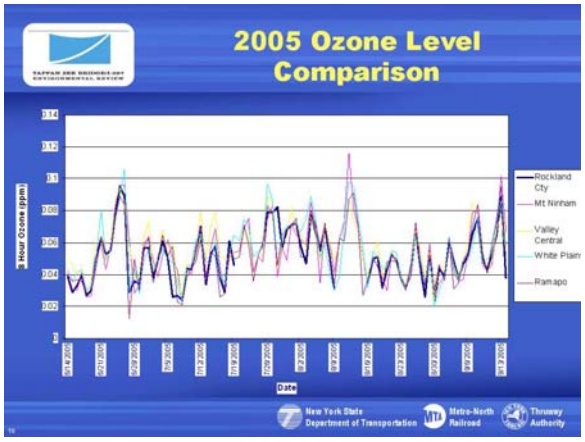


Slide 14

Rockland does not have permanent monitoring stations with year long data. Since 2004, DEC has collected summer season ozone and PM2.5 data at several temporary stations in Rockland. These temporary data show a consistent pattern as compared to the levels collected at those permanent stations in the neighboring counties.

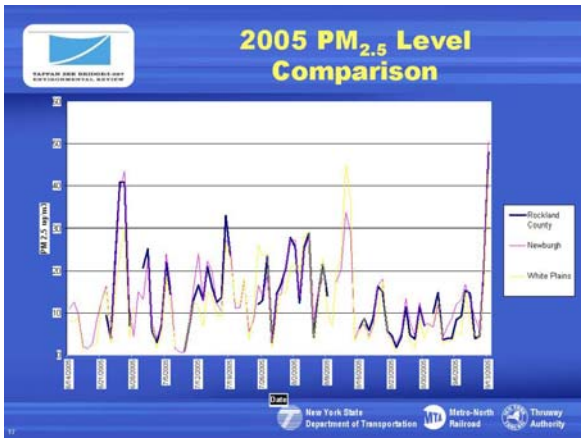
Slide 15

Based on these temporary summer season data, ozone and PM2.5 levels in Rockland are similar to the levels in the neighboring counties.



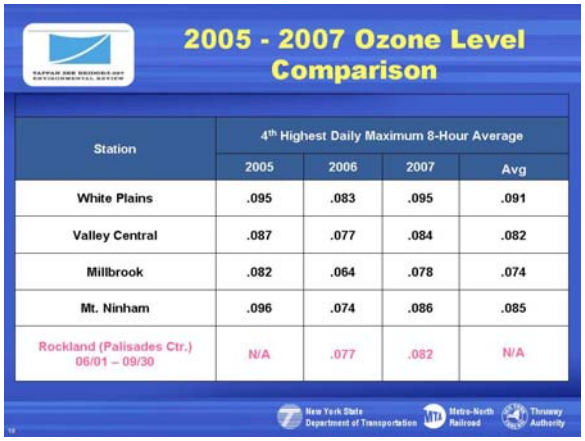
Slide 16

The chart developed by DEC shows 2005 ozone levels are consistent among various neighboring county sites.



Slide 17

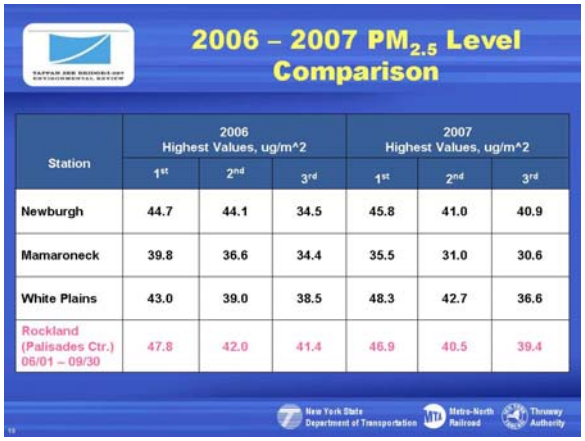
2005 PM2.5 levels also show similar consistent patterns among various monitoring sites.



Station	4th Highest Daily Maximum 8-Hour Average			
	2005	2006	2007	Avg
White Plains	.095	.083	.095	.091
Valley Central	.087	.077	.084	.082
Millbrook	.082	.064	.078	.074
Mt. Ninham	.096	.074	.086	.085
Rockland (Palisades Ctr.) 06/01 – 09/30	N/A	.077	.082	N/A

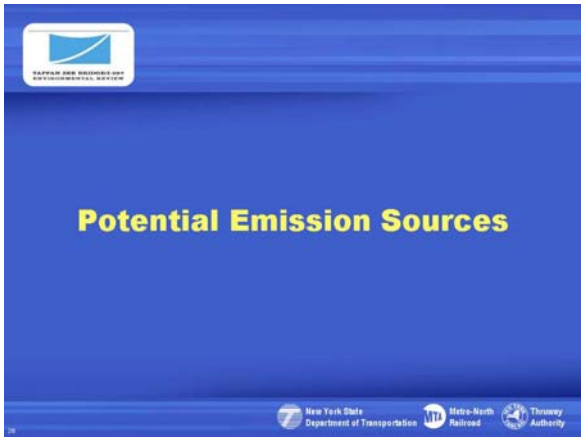
Slide 18

2006 and 2007 Palisades Mall ozone data show similar levels as collected at sites in neighboring counties.



Slide 19

2006 and 2007 Palisades Mall $PM_{2.5}$ monitoring data show similar levels as collected in the neighboring counties.



Slide 20

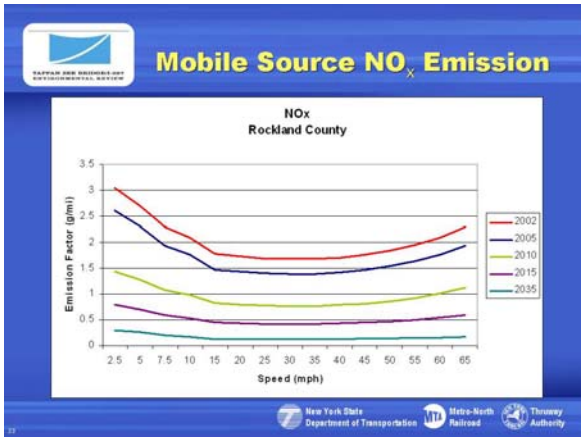
The next topic describes the emission sources associated with the project.

Slide 21

The project only involves mobile sources. No operations of stationary sources such as exhaust stacks will be associated with the project.

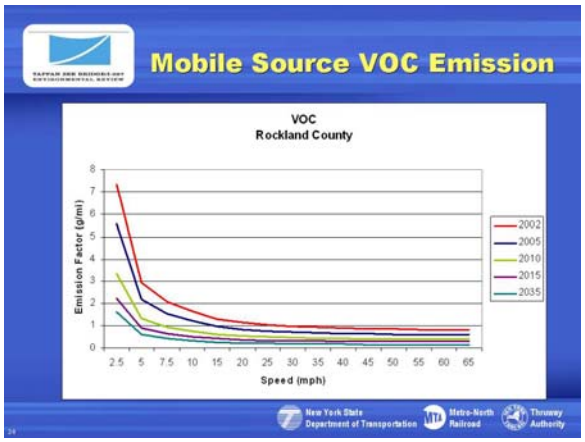
Slide 22

With regard to mobile source, what is the emission trend in emissions from these sources? Also, how do mobile source emissions change with vehicle speed?



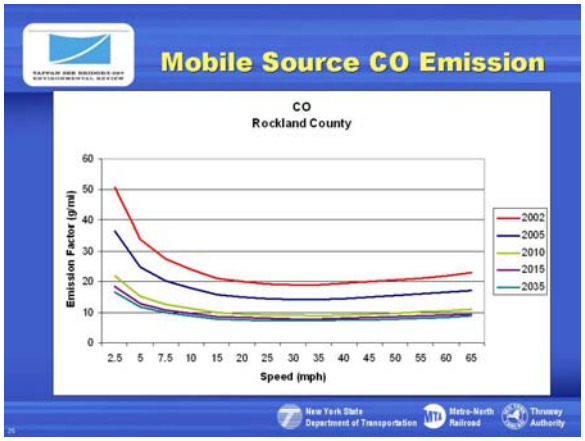
Slide 23

The mobile source emission factors as a function of speed in Rockland show that reducing congestion and improving travel speed will generally reduce emissions. This is one of the benefits to be achieved from the project. The slide also shows the trend of continuing emission reduction in the future due to federal/state emissions control programs.



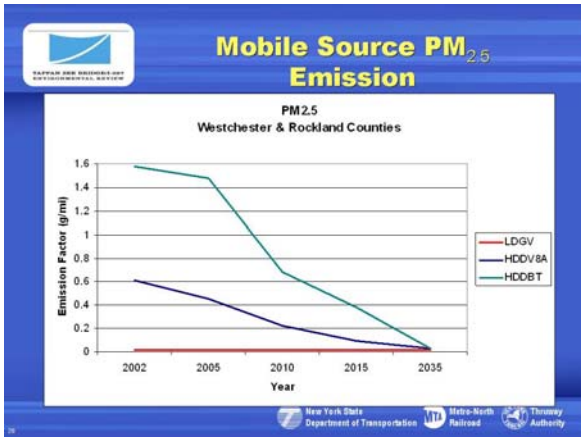
Slide 24

The reduction of VOC emissions due to an improvement in travel speed is obvious from this slide.



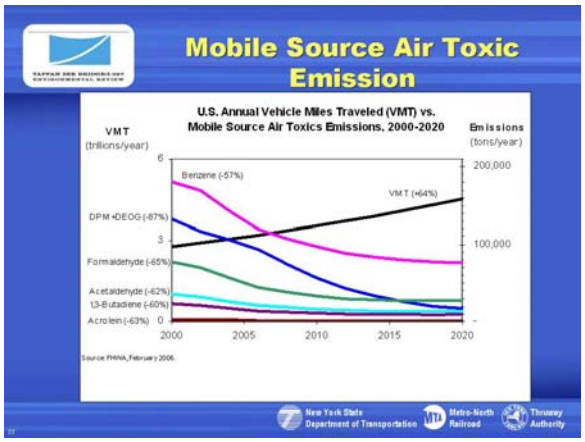
Slide 25

This slide shows the CO trend as a function of speed.



Slide 26

PM emission factors do not change with speed. This slide shows the future trend for several typical vehicles. It appears that PM emissions from heavy duty diesel vehicles including buses have been and will continue to be reduced in the future.

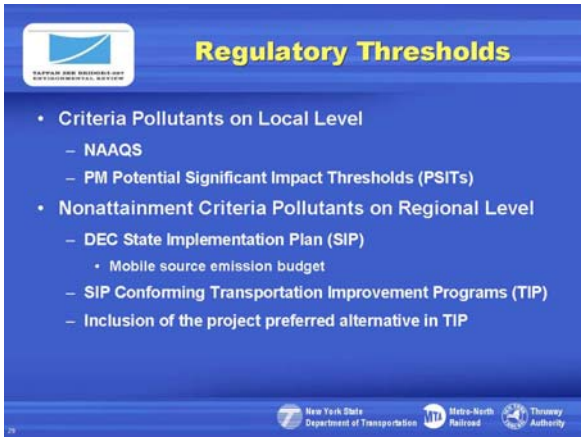


Slide 27

The previous slides covered criteria pollutants. This slide provides the national trend of mobile source air toxic emissions forecasted by FHWA. The trend as a function of time indicates that although the VMT in the future will increase, air toxic emissions will be reduced due to federal emissions control programs.

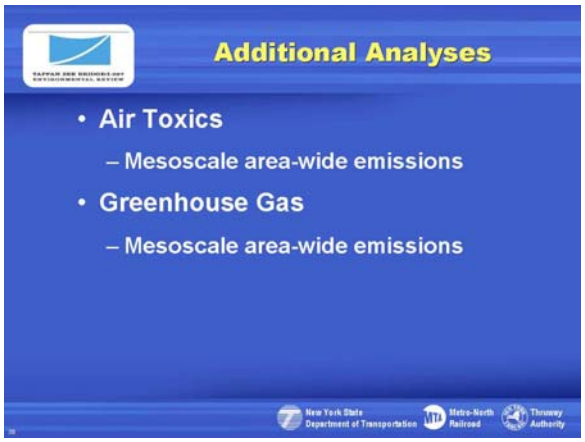
Slide 28

The next topic will address the applicable regulatory requirements for the project.



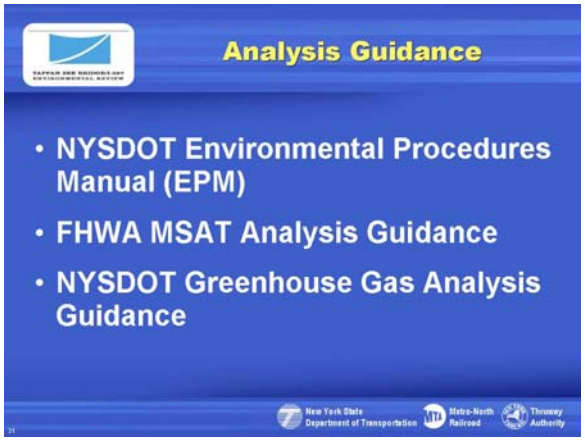
Slide 29

For criteria pollutants, the project needs to demonstrate compliance with the NAAQS on an absolute level and compliance with allowable PM increments locally. For nonattainment pollutants on regional level, the proposed action needs to be included in the TIP which has to conform with the SIP.



Slide 30

For non-criteria pollutants, mesoscale area-wide emissions estimates are required.

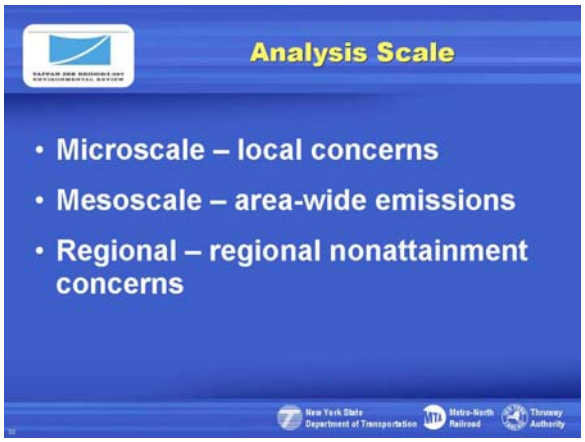


Slide 31

The slide provides the specific guidance that will be used in the air quality impact analyses. These guidance documents can be found on the agencies' websites.

Slide 32

The next topic is the analyses that will be presented in the EIS.

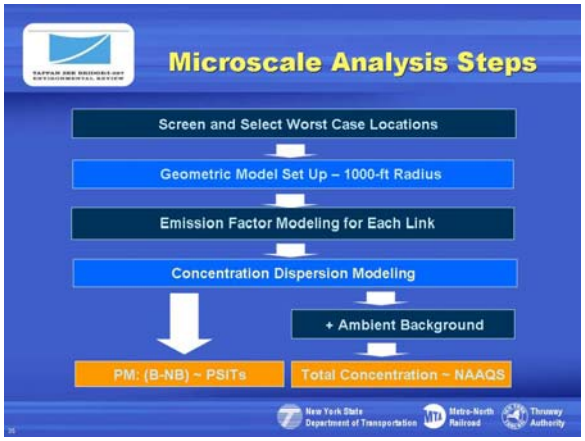


Slide 33

The microscale analysis addresses local concerns with respect to CO and PM concentrations in the air we breathe near traffic congested locations. The mesoscale and regional analyses focus on pollutant emissions over a much larger area particularly for ozone which is not released directly by emission sources.

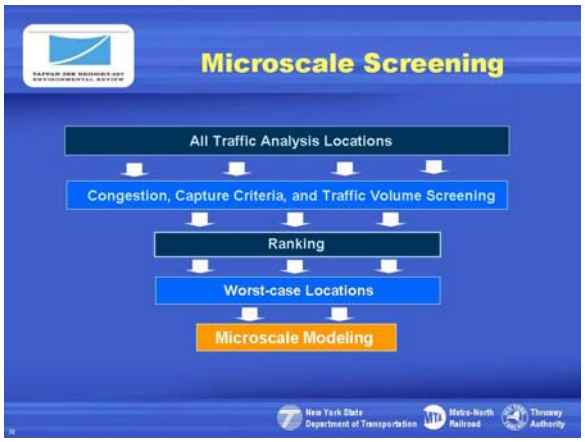
Slide 34

The Tier II Bridge and Highway analysis is presented first since it is a more refined analysis than that proposed for the Tier I Transit action



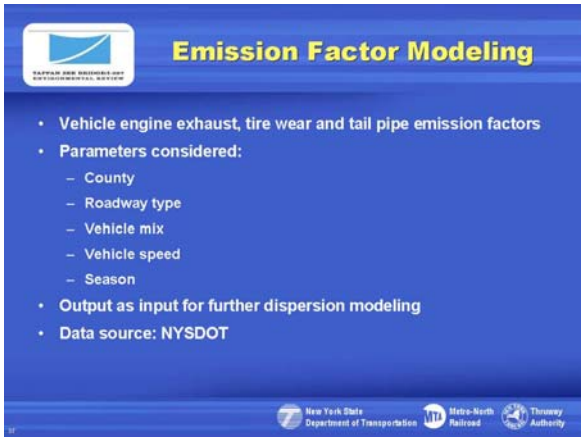
Slide 35

This slide shows the main steps to be taken for localized impact analyses. Suggestions on locations in the project area that are thought to be heavily polluted may be brought to the team's attention. The team expects that its analysis locations will overlap with those identified by the community.



Slide 36

This slide shows the screening process being followed to select the worst-case intersection locations for further microscale modeling analysis.

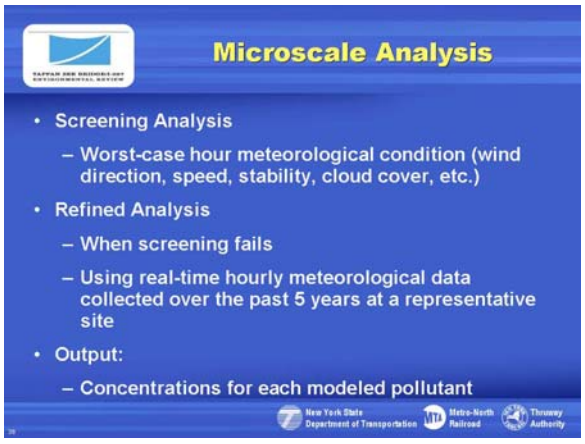


Slide 37

This slide presents the factors being considered to model traffic link-specific emission factors. These emission factors will then be used in the next step of the analysis.

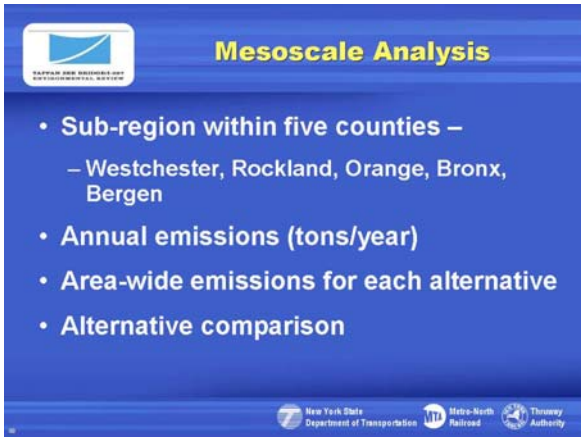
Slide 38

This is a typical modeling site. Traffic link geometry, signals, traffic data, and emissions will all need to be established as input to the dispersion model. The dispersion model will then predict downwind pollutant concentrations in publicly accessible areas.



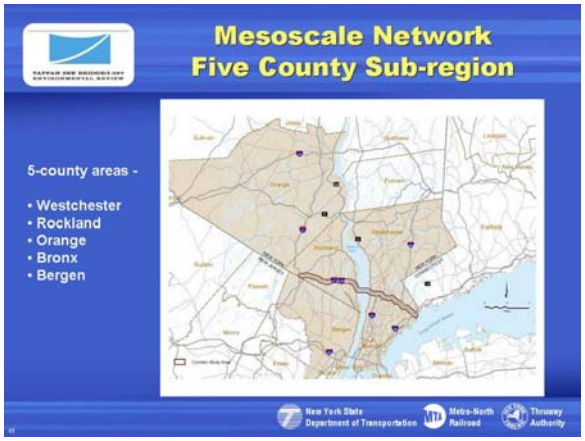
Slide 39

The model will be run in the screening mode first with worst-case meteorological data. Refined model runs will be conducted using real meteorological data if screening fails. If the refined runs fail, mitigation will be performed by changing modeling parameters such as site configuration, traffic data, etc.



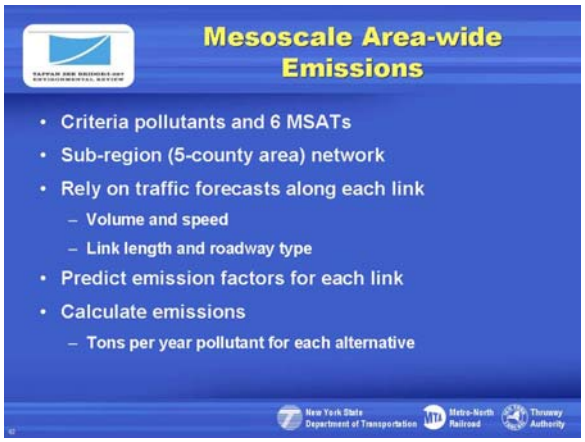
Slide 40

The mesoscale emissions analysis will be conducted to quantify on-road mobile source emissions over the traffic network of the five county sub-region that will be most impacted by the project. The analysis will be done for each alternative. The team expects that emissions conditions will be improved as was shown in the mode selection report.



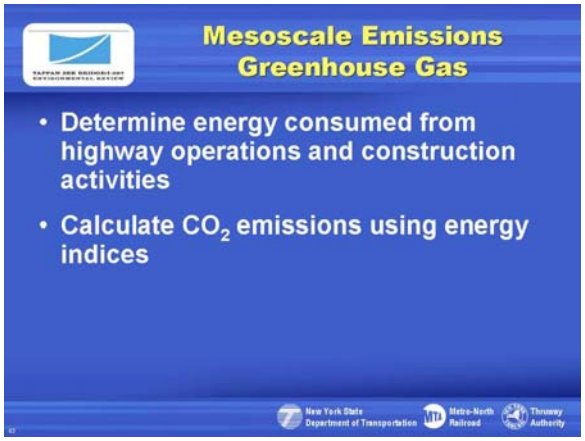
Slide 41

This slide shows the boundary of the mesoscale network.



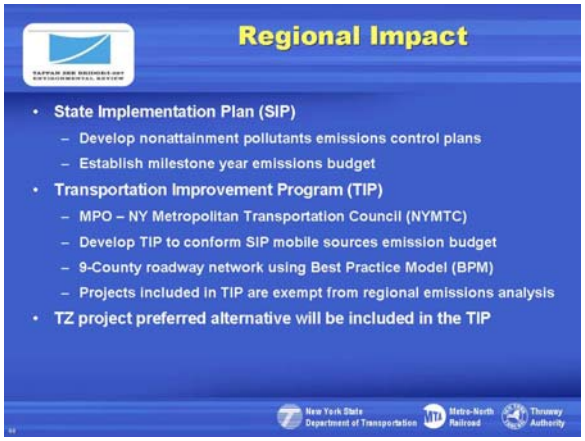
Slide 42

This slide summarizes the steps to be taken to calculate mesoscale emissions.



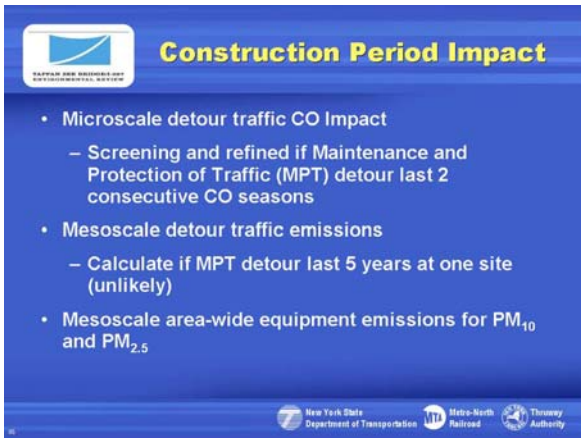
Slide 43

This slide shows the method proposed to predict CO_2 mesoscale emissions.



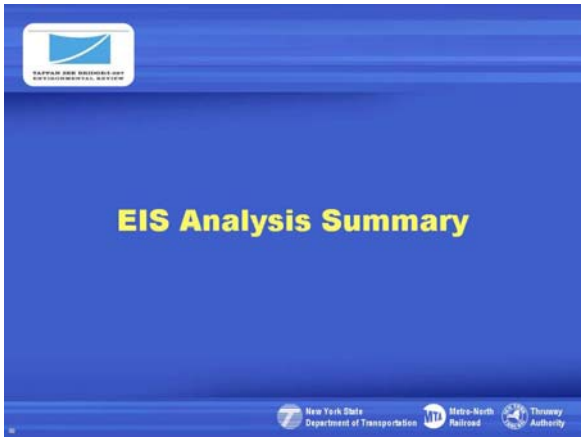
Slide 44

Regional impacts will be addressed through the inclusion of the proposed action in the TIP for which NYMTC is responsible. Project emissions have to be in conformance with the SIP that covers all sources.



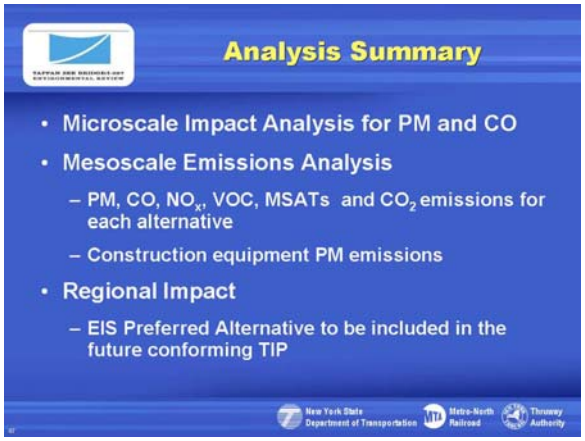
Slide 45

In addition to the operational mobile source impacts discussed above, the microscale air quality impacts of traffic detoured by construction will also be predicted using the same modeling approaches as for operations. Construction phase mesoscale emission analysis will focus on equipment-related PM emissions.



Slide 46

This completes the presentation.



Slide 47

A summary of the pollutants, scale, and issues to be addressed in the EIS is presented on this slide.

Slide 48

End slide.