

Guidance on Planning & Air Quality Analysis for Toll Projects

Environmental Affairs Division
Texas Department of Transportation
May 2005

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Introduction

The commission has directed TxDOT to evaluate all controlled-access mobility projects for tolling (Minute order 109519). Tolling decisions can be made at different times during project development including construction. The timing of the decision can lead to different air quality and conformity considerations.

Some possible tolling decision points include:

- during regional or statewide planning;
- prior to undertaking the environmental studies and public involvement for a specific transportation project;
- as part of the environmental studies and public involvement for a specific transportation project;
- after the environmental studies and public involvement for a specific transportation project are complete but prior to letting/construction;
- during construction; and
- when a facility is under traffic as a non-toll road

As all projects should be considered early in the transportation planning process, so should toll facilities. Some issues that will need to be addressed in considering toll and non-toll options vary from environmental justice and social issues associated with travelers'

ability to pay tolls, to the effects of air quality, noise, and light issues associated with toll plazas. Examining these potential issues during the planning process can save time later if a toll option is added as an alternative or selected as the preferred alternative.

Another important issue to be aware of when making tolling decisions is your MPO's tolling policies. For example, one MPO might have a policy not to toll any segments less than 3 miles long while other MPOs may be willing to toll shorter segments. Each MPO might also have a different policy on whether to toll direct connectors. These are just a few examples of policy decisions that might be in place in your area, so it is important to make sure you are aware of your MPO's policies in advance.

Definitions

The following is a list of terms and brief definitions often associated with planning, tolling, and air quality issues:

Categorical Exclusion (CE): Actions for which neither an environmental assessment nor an environmental impact statement is required because the actions do not individually or cumulatively have a significant effect on the human environment.

Congestion Mitigation and Air Quality Improvement Program (CMAQ): The federal program administered by the Federal Highway Administration and Federal Transit

Administration that provides funding for transportation projects that improve air quality and reduce traffic congestion.

Congestion Management System (CMS): A CMS identifies areas of congestion within the metropolitan planning area, and evaluates the use of various travel demand management and transportation system management strategies, including added capacity, to alleviate this congestion.

Environmental Assessment (EA): A document used to determine the nature and extent of social, economic, and environmental impacts for projects that do not meet the requirements for a CE, and for which the extent of impacts is not readily discerned. An EA should provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS) or whether a finding of no significant impact (FONSI) is sufficient.

Environmental Impact Statement (EIS): A detailed, specific document prepared for projects or actions which may significantly affect the quality of the human environment. A Draft EIS (DEIS) includes an explanation of the purpose and need for the project and analysis of: alternatives, the affected environment, environmental consequences, and mitigation options. A final EIS (FEIS) includes all of the elements of a DEIS plus a summary of public involvement opportunities, including public comments and responses.

Financially Constrained: All metropolitan transportation plans are required to identify: the funds expected to be available from public and private sources, and any additional financing

strategies needed for the implementation of the projects and programs included within the plan.

Finding of No Significant Impact (FONSI): A FONSI is a document prepared by a federal agency briefly presenting the reasons why an action, not otherwise categorically excluded, will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared.

HOT lanes: High Occupancy Toll lanes are lanes where low occupancy vehicles are charged a toll, while high occupancy vehicles are allowed to use the lanes free or at a discounted toll rate.

Managed lanes: Lanes that increase freeway efficiency by packaging together various operational and design actions. Lane management operations may be adjusted at any time to better match regional goals.

Metropolitan Transportation Plan (MTP): This transportation plan represents a 20-year perspective on transportation investments for a region. It is a requirement for areas with populations over 50,000 people.

Record of Decision (ROD): A document which contains an agency's final decision and constitutes final agency action on an EIS rendered during the National Environmental Policy Act (NEPA) process.

State Implementation Plan (SIP): The Plan developed by the state's environmental regulatory agency, Texas Commission on Environmental Quality, which demonstrates how the state will

achieve and maintain compliance with federal air quality standards.

Statewide Transportation

Improvement Program (STIP): A three-year financial program developed by TxDOT which includes regionally significant projects and any other projects within the boundaries of the state which are proposed for funding by FHWA or FTA.

Transportation Conformity: The method used to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals. It ensures that these transportation activities do not worsen air quality or interfere with the purpose of the SIP, which is to meet the U.S. Environmental Protection Agency (EPA) standards for air quality.

Transportation Improvement Program (TIP): A three-year financial program developed by the MPOs for a specific metropolitan area which includes regionally significant projects and any other projects within the boundaries of the state which are proposed for funding by FHWA or FTA.

Transportation Management Areas (TMA): Areas with a population over 200,000. These areas are required to have a CMS.

Value Priced Lanes (also known as congestion pricing or peak-period pricing): Lanes which have varying toll prices based on the time of day and level of congestion.

Planning Documents

There are several documents developed by Metropolitan Planning Organizations

(MPOs) and/or TxDOT which outline the transportation plans and programs for a specific area. These documents include the: STIP, MTP, TIP, and CMS.

The MTP is multi-modal and has at least a 20-year horizon. It is updated every 3 years in air-quality non-attainment areas and every 5 years in other areas. The MTP must include a financial plan that demonstrates how the plan can be implemented. The financial plan must include funds expected to be available from public and private sources and any additional financing strategies needed for the implementation of the plan's projects and programs.

The plan is carried out through the TIP for metropolitan areas and through the STIP for all other areas. The TIP and STIP are the primary programming documents for a region or state. They must cover at least 3 years and be updated at least every 2 years. Similar to the MTP, these short-range programs are multi-modal and financially constrained. STIPs/TIPs should only include those projects or an identified phase of a project, if full funding can reasonably be anticipated to be available for the project within the time frame anticipated for project completion.

A CMS identifies areas of congestion within the metropolitan planning area, and evaluates the use of various travel demand management and transportation system management strategies, including added capacity, to alleviate this congestion. TMAs (areas over 200,000) are required to have a CMS. In Texas the TMAs are Austin, Corpus Christi, Dallas/Fort Worth, El Paso, Hidalgo County, Houston/Galveston, Lubbock, and San Antonio.

The CMS is established and implemented by the MPO as part of the MTP process for all TMAs. The environmental documents for added capacity projects in TMAs should include language certifying that the project is from an adopted CMS.

For regionally significant added capacity projects in nonattainment TMAs the environmental documents must also contain language which reflects the following specific commitments in the project travel corridor which were developed by the local MPO as part of the CMS analysis:

- Type of commitment (i.e., HOV lane, traffic signal, etc.).
- Who is making the commitment
- Funding amount
- Identification number from the TIP for each commitment

Transportation conformity

Transportation conformity is a Federal Clean Air Act requirement for projects in nonattainment areas. The MTP and TIP in these areas must conform to the State Implementation Plan developed by the Texas Commission on Environmental Quality. To have a conforming MTP and TIP means that the MPO has demonstrated that the total emissions projected from the MTP and TIP are within the emission limits ("budgets") established by the SIP and that the MTP and TIP are financially constrained.

MPO policy boards make initial conformity determinations in metropolitan areas, while State Departments of Transportation usually do so in areas outside of MPOs. Conformity determinations must also be

made at the federal level by FHWA/FTA. Conformity determinations must be made at least every three years, or when transportation plans or TIPs are updated. Several of the larger MPOs update their plans every two years or sooner, as necessary.

When a conformity determination is not made according to schedule or if an MPO is unable to successfully demonstrate conformity there is a conformity lapse and the use of federal-aid funds is restricted for added capacity projects. Exceptions include: certain safety projects, certain mass transit projects, transportation control measures in approved SIPs, most CMAQ projects, and projects that are already authorized.

The Environmental Process

The environmental process is a critical part of project development. The project that results from the environmental review/public involvement process must be consistent with the project description in the MTP/TIP/STIP/CMS. The project design concept and scope and construction timing must agree with these plans. If the project does not agree, then appropriate revisions to the MTP/TIP/STIP/CMS must be made. If the project is located within a non-attainment area, a new conformity determination on the revised MTP/TIP/STIP would have to be completed before the environmental document could be approved by TxDOT and FHWA. The timing of updated conformity determinations in nonattainment areas and the availability of MPO traffic modeling data for toll projects may become important factors in project schedules.

The project that is built must be as described, assessed, and selected during the environmental review and public involvement processes. If changes are made in the project after the environmental review and public involvement process is complete and the resulting environmental decision has been made (either under NEPA or 43 TAC Part 1, Chapter 2, Subchapter C, §2.43), those changes must be evaluated to determine if they warrant additional environmental review, resource agency coordination, public involvement, revisions to the MTP/TIP/STIP/CMS, conformity analysis, and approval.

If FHWA issued an environmental decision (approved a CE, FONSI or a ROD) on a non-toll facility, the MTP/TIP/STIP will reflect the project as a non-toll facility. If the decision is made to toll the facility after the FHWA decision is issued, additional environmental studies would be necessary to determine whether or not tolling will result in significant impacts to the human or natural environment. Further, additional public involvement (possibly including a public hearing) would be required prior to a final decision to toll since the project was originally presented to the public as a non-toll project. Revisions to the MTP/TIP/STIP/CMS could also be required and, in nonattainment areas, a new conformity determination may be required before the project can be authorized and constructed.

Attachment 1 includes examples of tolling decisions and the impacts those decisions have on the planning and conformity processes for both attainment and nonattainment areas.

Air Quality Project Level Analysis

There are two types of project level analyses – Traffic Air Quality Analysis (TAQA), and conformity analysis.

A TAQA is done to determine the carbon monoxide (CO) impacts from a proposed project and to assure that those impacts do not cause an exceedance of the federal CO standard. It is required for all added capacity projects with more than 20,000 vehicles per day. If a TAQA has already been done on a non-toll project but then the decision is made to construct the project as a toll road, a TAQA would need to be re-done to assure there is still no exceedance of the standard.

Information required to perform a TAQA include:

- Average annual daily traffic data for the project's Estimated Time of Completion (ETC) year and a 20-year projection from the ETC (ETC + 20) – (obtained from TPP)
- Schematic layout of the project showing project right-of-way line.
- Background CO levels (obtained from ENV)
- Basic geometric design information including lane widths, right-of-way width, whether the project is at-grade, depressed, or elevated, etc.

Tolling may have a positive or negative impact on air quality depending on how the roadway is designed. For example, electronic toll collection is designed to keep traffic flowing at an uninterrupted pace and therefore should reduce any potential air quality impacts.

However, in some cases motorists may choose to avoid paying tolls by using service roads or alternate routes. This could then cause secondary air quality and other impacts for the service roads or the alternate routes. These impacts would need to be examined and taken into consideration; therefore, the necessary data to perform a TAQA would need to be obtained for any alternate routes that would likely be used.

Because there are so many aspects to consider, it is impossible to gauge the impacts a toll vs. non-toll road might have without doing an analysis of the specific project.

The MPO may also need to redo the conformity analysis if a project is revised to be constructed as a toll road along the way. Depending on how the toll road is designed, it could have an impact on the overall vehicle emissions attributed to this project in addition to impacting the timing of completion. This change could have a major impact on the MPO's conformity determination by creating the need for other projects to be delayed in order for the MPO to still maintain an MTP that demonstrates conformity.

EPA approved models. The following are the EPA-approved models that can be used for project level analyses:

- CALINE - a line source dispersion model which calculates the amount of CO generated along a roadway and then applies a dispersion model to calculate the peak hour CO concentrations at specific receiver locations along the ROW line.
- MOBILE - the EPA mobile source emissions model. This complex

model uses data on temperature, fleet mix, fleet ages, appropriate inspection-maintenance and anti-tampering programs, and vehicle operating modes to calculate VOC, CO, and NOx emissions for different speeds and years. MOBILE carbon monoxide emission data is input into the CALINE model to calculate CO concentrations.

- The El Paso District is required to use the CAL3QHC computer model in lieu of CALINE3 in the CO nonattainment area portion of El Paso County. CAL3QHC is also available for analyzing carbon monoxide concentrations at major congested intersections (Level of service D or worse).

Summary

The key to ensuring timely approval of environmental documents is constant coordination with your local MPO and with the Texas Turnpike Authority and Environmental Affairs Divisions. This is the only way to assure that your project has been accurately accounted for in the appropriate planning documents and to avoid costly delays caused by having to revise the STIP/MTP/TIP/CMS, or environmental documents.

Some helpful tips include:

- Stay in-tune with your MPO's MTP update cycle. Sometimes off-cycle updates are done and modified projects can be included at that time.
- Assure that project development staff are aware of all necessary requirements and are familiar with the MTPs, TIPs, CMS, and STIP
- Plan project schedules accordingly

- Update your MPO contacts regularly on any project changes and timing
- Make sure you know your MPO's policies on tolling decisions.

ATTACHMENT 1

The following are examples of tolling-related changes to projects that could occur and the impacts that these changes could have on the planning and conformity processes for both attainment and nonattainment areas. Making tolling-related changes to a project could require additional review; public involvement; revisions to the MTP/TIP/STIP/CMS; conformity analysis; and/or approval regardless of which phase the project is currently in when the decision to toll has been made.

Close coordination with the MPO will be necessary to assure that the appropriate planning documents are consistent with your project. Furthermore, in nonattainment areas a new conformity determination will have to be completed any time the MTP and/or TIP are revised. These actions can take weeks or months to accomplish depending on where your MPO is in its planning update cycle, what its tolling policies are, and the MPO's current workload demands. It is very important to keep this in mind as you work through each phase of the project. If a decision to change from a non-toll to a toll road is made during the planning and public outreach phase, a delay of several months may not seem critical. However, if a decision is made just as construction is set to get underway, a delay of several months could be critical.

EXAMPLE 1

The current MTP includes a project which would add a new non-tolled, two-lane roadway. This project was originally scheduled for completion in 2011. A decision has now been made to toll the roadway. The tolling option will allow the project to be completed several years sooner.

If the project is in an attainment area - the MTP and STIP/TIP need to be revised to reflect the change to the project and to demonstrate that the MTP and STIP/TIP are still financially constrained before the environmental document can be approved. If the project is in a TMA the CMS analysis might also need to be re-done.

If the project is in a nonattainment area - the MTP and TIP need to be revised to reflect the change to the project and to demonstrate that the MTP/TIP are still financially constrained. The CMS analysis might also need to be re-done. Additionally a new conformity determination will need to be completed before the environmental document can be approved. Since the project is now scheduled to be completed years before originally planned the MPO might have to rearrange its mix of projects (including delaying other projects) in order to have an MTP and TIP that still demonstrate conformity.

Additionally, if the MPO has just recently completed its latest conformity determination and is not planning to go through that process again any time soon there could be a major hold-up with the project. Close coordination with the MPO will be required to resolve this situation.

EXAMPLE 2

A decision has been made to add toll plazas rather than the originally planned electronic toll collection.

If the project is in an attainment area – the CO analysis will need to be re-done to assure that the CO standard will not be exceeded. As the MPO would have approved the project as an electronic toll collection project or could have approved it based on the understanding that it would be an electronic toll collection project, the MPO should be consulted and the MTP changed, if necessary.

If the project is in a nonattainment area – the CO analysis will need to be re-done to assure that the CO standard will not be exceeded. Electronic tolling keeps traffic flowing at an uninterrupted pace. However, adding toll plazas will result in stop and go traffic. This will cause a change in the vehicle emissions anticipated from the roadway. Due to that change, additional conformity analyses will need to be done to assure that the MPO's MTP and TIP still conform. However, if the MPO has just recently completed its latest conformity determination and is not planning to go through that process again any time soon, there could be a major hold-up with the project. Close coordination with the MPO will be required to resolve this situation.

EXAMPLE 3

A project was originally planned which would add four new single occupancy vehicle lanes to an existing four-lane highway. Now a decision has been made to construct the new lanes as managed lanes such as HOT lanes.

If the project is in an attainment area – the MTP and STIP/TIP need to be revised to reflect the change to the project and to demonstrate that the MTP and STIP/TIP are still financially constrained before the environmental document can be approved. If the project is in a TMA the CMS analysis might also need to be redone. Additionally, the CO analysis will need to be re-done to assure that the CO standard will not be exceeded.

If the project is in a nonattainment area - the MTP and TIP need to be revised to reflect the change to the project and to demonstrate that the MTP/TIP are still financially constrained. The CMS analysis might also need to be redone. Additionally a new conformity determination will need to be completed before the environmental document can be approved. However, if the MPO has just recently completed its latest conformity determination and is not planning to go through that process again any time soon there could be a major hold-up with the project. Close coordination with the MPO will be required to resolve this situation.

Additionally, the CO analysis will need to be re-done to assure that the CO standard will not be exceeded. Due to a change in the vehicle emissions, additional conformity analyses will also need to be done to assure that the MPO's MTP and TIP still conform.