

Planning and Environmental Linkages (PEL) Handbook

December 2012

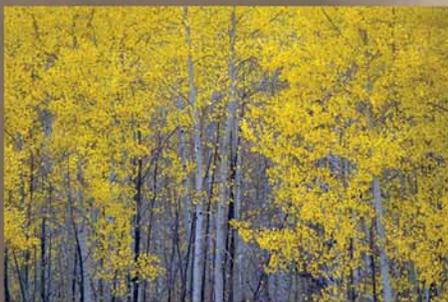




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LIST OF ACRONYMS

- C -

CatEx	Categorical Exclusion
CDOT	Colorado Department of Transportation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations

- E -

EA	Environmental Assessment
EIS	Environmental Impact Statement

- F -

FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration

- G -

GIS	geographic information systems
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- H -

HOV	high occupancy vehicle
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- L -

LOS	level of service
LOSS	level of service of safety

- M -

MAP-21	Moving Ahead for Progress in the 21 st Century
MPO	Metropolitan Planning Organization

- N -

NEPA	National Environmental Policy Act of 1969
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- P -

PEL	Planning and Environmental Linkages
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- R -

ROD	Record of Decision
ROW	right-of-way
RPEM	CDOT Region Planning and Environmental Manager
RTP	Regional Transportation Plan

- S -

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users
SPR	State Planning and Research





STIP Statewide Transportation Improvement Program
STP Statewide Transportation Plan

- T -

TERC Transportation Environmental Resource Council
TIP Transportation Improvement Program
TPR Transportation Planning Region

- U -

USC US Code





1.0 INTRODUCTION

The Colorado Department of Transportation (CDOT) developed this Planning and Environmental Linkages (PEL) Handbook in coordination with the Federal Highway Administration (FHWA) to provide guidance on integrating statewide, regional, and local transportation planning efforts with the National Environmental Policy Act (NEPA) process. The PEL process is based on the need to streamline decision-making, improve project delivery, to include environmental considerations in the transportation planning process, and to better link planning with NEPA. Accordingly FHWA and the Federal Transit Administration (FTA) have been working with state and local transportation agencies and public works departments for the past several years to reduce the duplication of work between transportation planning and NEPA and to reduce potential delays in project delivery as projects move from planning to project design and development.

The PEL process is early in its development and includes a degree of flexibility in its application. This Handbook is considered a living document and is anticipated to be modified as the PEL process matures. For the purposes of this Handbook, NEPA language and terms were utilized; however, these may be modified on a project-specific case-by-case basis.

This Handbook provides CDOT staff, in close coordination with local governments and regional planning agencies, recommended guidance on developing PEL studies for transportation projects. This guidance should not be considered regulatory or mandatory. CDOT and local governments invest considerable resources and time conducting transportation planning activities and NEPA studies. It is assumed that the professionals using this Handbook will have some experience in the field of transportation planning and NEPA.

Please note that the Moving Ahead for Progress in the 21st Century (MAP-21) transportation bill was passed during the finalization of this Handbook. This Handbook references the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) transportation bill throughout. This Handbook is being published as an interim version until it can be updated to include the MAP-21 guidance.

1.1 Organization of the PEL Handbook

This Handbook is organized into five chapters:

Chapter 1: Introduction. Chapter 1 provides the purpose and organization of the PEL Handbook.



Chapter 2: What is the background of the PEL process? Chapter 2 provides an introduction to the existing policy and procedural requirements for PEL and the PEL planning context.

Chapter 3: What are the steps for conducting a PEL Study? Chapter 3 provides information on the PEL study process, including detailed guidance on conducting a PEL study based on the full FHWA PEL questionnaire.

Chapter 4: What are the documentation requirements for a PEL study? Chapter 4 provides information on documentation strategies for a PEL study.

Chapter 5: What are the recommendations for stakeholder involvement during a PEL study? Chapter 5 provides information on public outreach and agency scoping and coordination and key Coordination Points in the PEL process.

Chapter 6: PEL Best Practices in Colorado - Chapter 6 provides some of the “best practices” from PEL studies conducted in Colorado to date.

This Handbook has been organized to encourage its use by a wide audience of users. To facilitate an understanding of the information presented in this Handbook, call-out boxes have been included throughout. These call-out boxes have been divided into two groups. The first set of boxes, which are denoted by a columbine flower and green border, contain tips, tools, quotes, and other items that have been highlighted for use by the reader. The second set of call-out boxes, which are denoted by an aspen leaf and orange border, include resources, such as websites, regulatory citations, guidance documents, and other references that can be researched by the reader for additional information.

1.2 What is PEL?

FHWA defines PEL as a voluntary approach to transportation decision-making that considers environmental, community, and economic goals early in the planning process and carries them through project development, design, and construction (FHWA, 2008). The PEL process can lead to a better decision-making process that minimizes duplication of effort, promotes environmental stewardship, and reduces delays in project delivery (CDOT, 2008, as amended).

Decision-making for transportation projects involving federal actions begins with transportation planning before proceeding to project development, which includes the evaluation of environmental resources as required by NEPA. These two processes are intended to work in tandem, with the results of the transportation planning process feeding into project development, including the NEPA process (**Figure 1-1**). In practice, however, transportation planning and NEPA analysis have sometimes



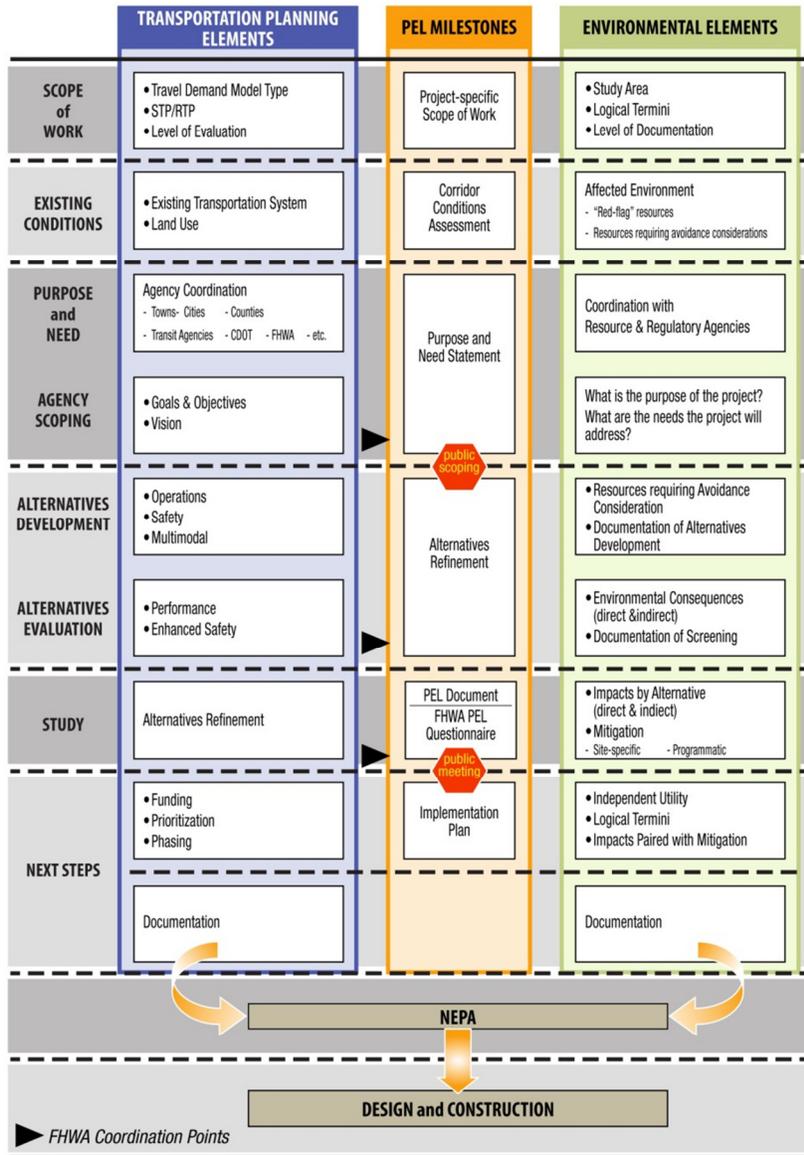
FHWA’s website on PEL is available at:
<http://environment.fhwa.dot.gov/integ/index.asp>





become disconnected, resulting in duplication of work and delays in implementing needed transportation projects.

Figure 1-1 PEL Process



Congress recognized the need to streamline the transportation decision-making process in the August 10, 2005 SAFETEA-LU transportation funding legislation, which emphasized the need to include environmental considerations in the planning process and better link planning with NEPA.



Specifically, Section 6001 (Environmental Considerations in Planning) requires certain elements and activities to be included in the development of long-range transportation plans, including:

- Consultations with resource agencies, such as those responsible for land-use management, natural resources, environmental protection, conservation, and historic preservation, which shall involve, as appropriate, comparisons of resource maps and inventories
- Discussion of potential environmental mitigation activities
- Participation plans that identify a process for stakeholder involvement
- Visualization of proposed transportation strategies where practicable

The statewide and metropolitan transportation planning regulations (23 Code of Federal Regulations [CFR] 450) explains how results or decisions of transportation planning studies may be used as part of the overall project development process consistent with NEPA (FHWA, 2001). Appendix A of 23 CFR 450 - Linking the Transportation Planning and NEPA Processes provides details on how information, analysis, and products from transportation planning can be incorporated into and relied upon in NEPA documents under existing laws. The statewide and metropolitan planning regulations regarding PEL are intended to be non-binding and voluntary.

The need for a project to meet fiscal-constraint requirements before the NEPA process can begin is an opportunity for the PEL process to provide initial evaluation of a project without identified construction funding. PEL studies do not need to be in the fiscally-constrained Regional Transportation Plan (RTP) or Statewide Transportation Plan (STP) and can be initiated at any time.

1.3 PEL in Colorado

PEL was implemented in Colorado because of the need to conduct NEPA studies on many large corridors. There was a need to narrow down the number of alternatives in planning before conducting extensive studies during NEPA. In response, CDOT has instituted a number of activities to facilitate the integration of planning and environmental analysis, including: development of online PEL training, an online PEL Decision Tool, and guidance materials.



1.3.1 PEL Training - Online

CDOT created an online, interactive training entitled “Linking Planning and NEPA.” This training is available to CDOT staff, local governments, and planning agencies. The purpose of this training is to provide CDOT and its regional transportation planning partners with guidance on integrating useful NEPA information into statewide and regional transportation planning processes. In addition to offering an overview of statewide and regional transportation planning and NEPA processes, the training provides an “applied” portion, which takes the student step by step through the contents of a sample corridor or area plan to illustrate how information typically related to a NEPA process can be effectively incorporated into the planning process.

1.3.2 PEL Decision Tool - Online

CDOT has developed a PEL Decision Tool, which is an online, interactive tool to guide decision-making during the planning stages of transportation projects. The PEL Decision Tool is intended to assist users to identify appropriate planning studies to conduct given specific transportation problems. The online tool, available to CDOT staff, local governments, and planning agencies by request, guides users through a series of questions about the identified transportation problem. The tool filters responses to questions that cover various factors, including the project location, funding availability, environmental and social issues within specific project locations, and the desired outcome of the study. The PEL Decision Tool generates a report that includes recommended tasks to undertake and resource agencies to coordinate with, which ensures consistency with CDOT’s PEL process. In addition, the PEL Decision Tool produces a flowchart that outlines the transportation planning process and highlights where planning and the environment weave together.



Interactive PEL training is available at:

<http://www.coloradodot.info/programs/environmental/planning-env-link-program>

The training will introduce you to the contents of CDOT’s PEL program, including:

- Basics of statewide and regional planning process
- Basics of the NEPA process
- Opportunities for linking statewide and regional planning to the NEPA process



PEL Decision Tool is available at:

<http://dtdapps.coloradodot.info/pel>



2.0 WHAT IS THE BACKGROUND OF THE PEL PROCESS?

In 1991, Colorado's General Assembly enacted legislation providing the basis for the transportation planning process in Colorado. The law required the development of a comprehensive, long-range twenty year STP that incorporates the priorities and needs of Colorado's 15 Transportation Planning Regions (TPRs). CDOT carries out a continued, cooperative, and comprehensive statewide multimodal transportation planning process with its 15 TPRs. Of the 15 TPRs, ten are considered non-urban TPRs and the five located in urban areas are considered Metropolitan Planning Organizations (MPOs). Each TPR is comprised of the municipalities and counties within its established boundaries.

The planning process includes the development of long-range multimodal RTPs by each TPR. RTPs developed by the TPRs are integrated by CDOT into the STP. The RTPs and STP include both fiscally-constrained and fiscally-unconstrained vision components and identify the needs, corridor strategies, and/or projects anticipated to be constructed over the next twenty-plus years. The STP combines the individual corridor visions of the TPRs into a statewide vision that links transportation goals and strategies to investment decisions.

CDOT has recently incorporated PEL opportunities into the STP. The STP includes an environmental section that lists conservation and management plans for resource agencies in each TPR and MPO RTPs. Each of the 15 TPRs include corridor visions that integrate community values, land use decisions, and environmental concerns with transportation needs. Approximately 350 corridor visions have been updated by the TPRs to identify current trends and conditions. Corridor visions increase the efficiency and accountability of the transportation system by aligning vision strategies and project priorities.

CDOT also develops a Statewide Transportation Improvement Program (STIP) that identifies the short-term project needs and priorities of the State of Colorado. In addition, under federal law all of the MPOs are required to develop a short-term capital improvement program (Transportation Improvement Program [TIP]) consistent with the long range RTPs for each MPO. Similar to the STIP, the TIPs for each MPO are updated every four years and include a six-year planning horizon. TIPs approved by the MPO are included in the STIP without modification. STIP projects must be consistent with the corridor visions identified in the STP. All federally funded and regionally significant projects in the areas of the state outside of the MPOS are identified in the STIP, and corresponding TIP if applicable.



Colorado's transportation planning law is codified in 43-1-1103, Colorado Revised Statutes with additional regulation outlined in 2-604-2, Code of Colorado Regulations.

Federal transportation planning law is codified in 23 US Code (USC) 134 and 23 USC 135, with additional regulations in 23 CFR 450, 23 CFR 500, and 49 CFR 613.

To find out more about the recently adopted 2035 Statewide and Regional Transportation Plans and the 2035 Statewide Plan Amendment (2011) and other transportation planning related topics, see CDOT's Statewide/Regional Planning website at:

<http://www.coloradodot.info/programs/statewide-planning/planning-process.html>





2.1 Types of CDOT Planning Studies

CDOT currently has standard practices for conducting multiple types of planning studies. These studies include:

- Environmental Overview Study
- Corridor Optimization Plan
- Feasibility Study
- System Level Study

Different planning processes take projects through analysis at different levels of detail. Without knowing how far or in how much detail a planning study provided, NEPA project teams are not aware of and may often redo work that has already been done. To limit or avoid rework, the PEL process should be followed for these planning studies, notably the agency Coordination Points discussed in **Section 4.1**. Of these studies identified, the System Level Study involves a specific review process by CDOT and is discussed in greater detail below.

2.1.1 System Level Study - Interchanges

The System Level Study is a requirement of CDOT Policy Directive 1601 and Procedural Directive 1601.1, which is a CDOT process to review requests for new interchanges and major improvements to existing interchanges on the state and federal-aid highway system (CDOT, 2005). CDOT Policy Directive 1601 and Procedural Directive 1601.1 were established by the Colorado Transportation Commission to provide fair and consistent procedures regarding the review and evaluation of requests for new interchanges and major improvements to existing interchanges on the state highway system.

The System Level Study follows steps similar to the PEL process but also has specific requirements that must be met as well. The purpose of a System Level Study is to identify the short and long-term environmental, community, safety, and operations impacts of a proposed interchange or interchange modification to the degree necessary for the CDOT Chief Engineer, Transportation Commission, and FHWA to make an informed decision on whether the proposed interchange or interchange modification is in the public interest. A System Level Study that integrates the PEL guidance would cover:

- Draft Purpose and Need Statement
- Existing and Forecasted Conditions
- Alternatives
- Planning-level Evaluation of Alternatives



- Environmental Considerations
- Funding and Phasing

The System Level Study shares many of the same components of a PEL study; however, the approval process for a System Level Study is different than the recommended Coordination Points for a PEL study (**Section 4.1**). CDOT Policy Directive 1601 and Procedural Directive 1601.1 are a Colorado-specific process requiring CDOT Chief Engineer and Transportation Commission approval depending on the category type of the 1601 application and does not necessarily include FHWA involvement until NEPA. **Table 2-1** compares the 1601 process without a PEL study and the 1601 process with a PEL study.

Table 2-1 Comparison of CDOT Interchange Approval with and without an Associated PEL Process

Process Step	1601 without Associated PEL Process	1601 with Associated PEL Process
Purpose and Need	Draft, No public review	Public review
Planning Analysis	✓	✓
Alternatives Development	✓	✓
Evaluation of Alternatives	✓	✓
Recommendation(s) for transportation improvements (one or more alternatives)	✓	✓
Agency Coordination and Public Involvement	Cursory	Can be more intensive and focused depending on project-specific need FHWA involvement required at Coordination Points
Environmental Overview and Analysis	Cursory, Identify significant implications	Can be more intensive, Includes cumulative impacts
Funding Plan	Preliminary financial plan	Funding/Prioritization/Phasing Implementation Plan recommended.
Approvals/Acceptance	Conditional - CDOT, FHWA – no fatal flaws	FHWA PEL questionnaire; Coordination Points
Ability to carry decisions into NEPA without backtracking	Possible	Allows decisions to carry into NEPA without backtracking if documented correctly

Information about how the NEPA process and the CDOT Interchange Approval Process relate is included in **Section 3.4** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.





2.2 Relationship Between Planning Studies and NEPA

From a corridor/project-specific standpoint, the PEL process can be used to identify project-specific benefits, issues, concerns, and opportunities at the planning stage, often before project funding has been allocated, at a level of detail and documentation appropriate for use in a later NEPA process. A corridor/project-specific PEL study may be used to establish project purpose and need, analyze alternatives, and evaluate environmental impacts and mitigation, all within a framework that can be used in a future NEPA process. To illustrate this, **Figure 2-1** contrasts the traditional “planning then NEPA” approach with a PEL approach.

A key component of the PEL process is coordination with FHWA at specific milestones: purpose and need, alternatives development/analysis, and the PEL document. FHWA involvement is necessary at these crucial points because they are crucial in establishing the framework for future NEPA (**Section 4.1**).

In addition, early scoping with resource agencies and stakeholders and a focused public outreach program are steps within the PEL process that directly tie to future NEPA. Early scoping should be conducted with resource agencies and stakeholders to ensure their topics are addressed in the purpose and need, alternatives development/analysis, and PEL study. Public review of the draft purpose and need statement is an element of NEPA that should be included in the PEL process. **Chapter 5** further discusses stakeholder involvement.

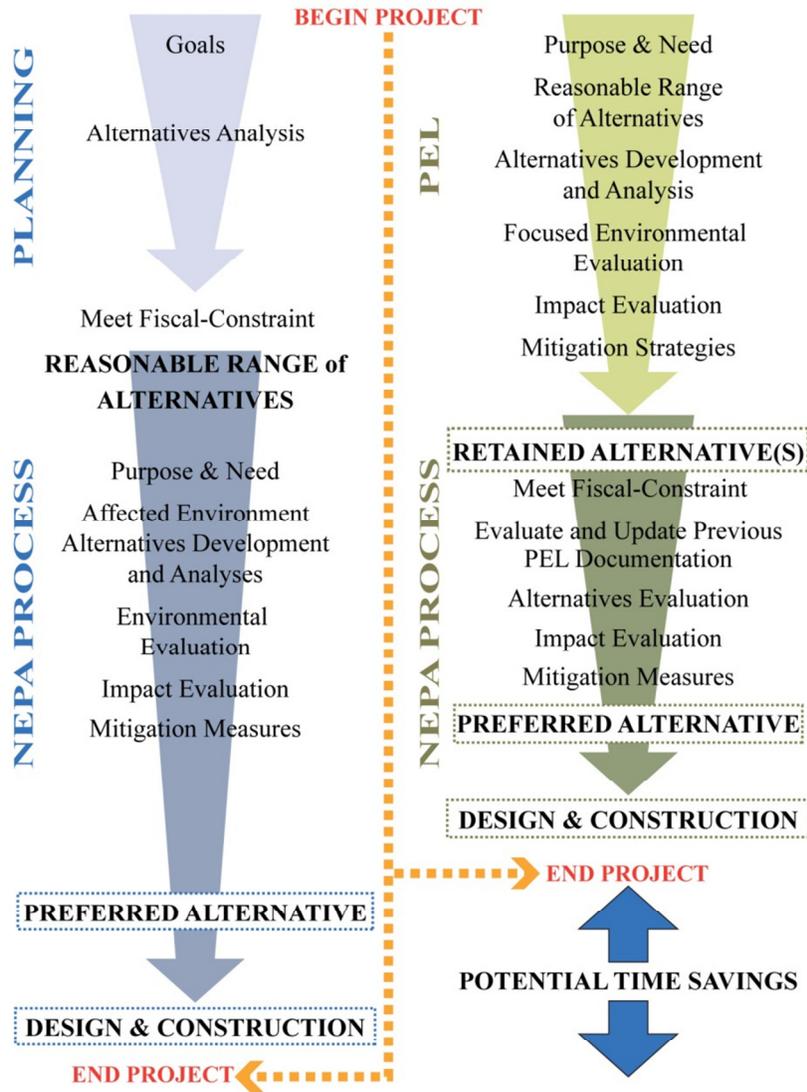


“The transportation planning process and the environmental analysis required during project development by NEPA should work in tandem, with the results of the transportation planning process informing the NEPA process”

FHWA/FTA, 2005b (pg. 2)



Figure 2-1 Example Comparison of “Planning then NEPA” and PEL Processes



NOTE: Stakeholder Involvement Throughout

Source: Felsburg Holt & Ullevig, 2012



2.3 Existing Guidance

This section provides an overview of the existing FHWA/FTA guidance on the PEL process.

2.3.1 FHWA and FTA PEL Guidance

The FHWA and FTA issued two pieces of guidance, *Memorandum Regarding Integration of Planning and NEPA Processes* (FHWA/FTA, 2005a) and *Linking the Transportation Planning and NEPA Processes* (FHWA/FTA, 2005b), on how transportation planning level information and products may be used to focus the documentation prepared to comply with NEPA. In the guidance, FHWA and FTA agree to use the PEL approach during project development. The intent is to clarify the resource agencies' understanding of transportation improvements and the transportation agencies' understanding of environmental regulatory requirements. Both federal transportation and NEPA strongly suggest that the NEPA process should use and build on the information developed and decisions made during the planning process, to the extent practicable. Of course, where the transportation planning process fails to address or document issues, the NEPA analyses and documentation may have to supplement the information developed during the planning process.

On April 5, 2011, the FHWA issued *Guidance on Using Corridor and Subarea Planning to Inform NEPA* (FHWA, 2011a). This guidance describes how corridor and subarea planning can be used to bridge the transportation planning and NEPA processes as described in Appendix A of 23 CFR 450 – Linking the Transportation Planning and NEPA Processes. Chapter 4.0 of this guidance document focuses on elements that make a planning study viable for NEPA, including information on environmental analysis and documentation. Also, useful case studies are highlighted in Appendix B of this guidance document.

2.3.2 FHWA PEL Questionnaire

The FHWA PEL questionnaire, entitled *FHWA Planning and Environmental Linkages Questionnaire*, is consistent with 23 CFR 450 and other FHWA policies pertaining to corridor studies (FHWA, 2011b). The questionnaire serves as a guide for conducting a PEL study and provides questions/issues that should be addressed in a particular study. The questionnaire provides a summary of the planning process and includes questions related to corridor vision/purpose and need, range of alternatives and evaluation criteria, agency and public coordination, environmental resources, and the relationship to future NEPA documents. When completed, the questionnaire is intended to provide documentation with the submittal of the planning study (e.g., as part of executive summary, chapter, or appendix). The



FHWA will use the FHWA PEL questionnaire to assist in determining if an effective PEL process has been conducted before NEPA processes are authorized to begin. The questionnaire should be included in the PEL document as an executive summary, chapter, or appendix.



questionnaire can then be used as a tool for organizing and identifying documentation as a project transitions from planning to NEPA analysis. A copy of the questionnaire is included in **Appendix A**.

2.4 Why a PEL Study?

With the authorization of SAFETEA-LU and creation of the PEL process by FHWA/FTA, the planning process has been significantly enhanced in terms of the types of projects which can be performed. With the project-specific PEL process, CDOT or a local municipality may now initiate and lead the planning process in coordination with the relevant stakeholders. By combining environmental and planning efforts, a project without identified funding sources can recommend one or more alternatives for transportation improvements, which can then be used to streamline the completion of a future NEPA study.

The primary objective of the PEL process is to assess a transportation need, sometimes within a bigger picture than a corridor or intersection improvement, with enough detail that the information developed can be utilized in future planning and NEPA. This can include, but is not limited to, recommend one of more refined alternatives that can be evaluated in future NEPA processes or development of key components for future analysis, such as independent utility/logical termini, a purpose and need, an analysis of the environmental impacts, and measures to mitigate adverse environmental impacts.

2.4.1 Fiscal-Constraint

It is critical that FHWA and CDOT provide due diligence as to how public funds are expended. When making NEPA decisions, including the decisions on whether to initiate the NEPA process, it is incumbent on FHWA and CDOT to consider the broader context of fiscal stewardship. Fiscal stewardship is a critical role and responsibility for FHWA and CDOT and is engrained throughout the transportation decision making process: from fiscal constraint requirements in the transportation planning process, to reasonable cost estimates of alternatives in project development and the NEPA process, to financial plans and major project requirements during design and construction. The need for a project to meet the fiscal-constraint requirements before the NEPA process can begin is an opportunity for the PEL process to provide initial evaluation of a project without funding for construction identified.

Before FHWA and CDOT can sign a final NEPA decision document (Record of Decision [ROD], Finding of No Significant Impact [FONSI], or programmatic or non-programmatic Categorical Exclusion [CatEx]), the proposed project, as defined in the NEPA document, must meet specific



The FHWA PEL questionnaire can be found at: http://environment.fhwa.dot.gov/integ/case_colorado2_quest.asp



PEL studies do not need to be in the fiscally constrained RTP or STP and can start at any time.



fiscal-constraint criteria (FHWA, 2011c). These criteria are included in the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>. Projects that lose funding during NEPA will be converted to a PEL study.

PEL studies do not need to be in the fiscally constrained RTP or STP and can start at any time, but the study must be in the Unified Planning Work Program or State Planning and Research (SPR) work program when funded with Metropolitan Planning /SPR funds (FHWA, 2011).

2.5 *Benefits of Conducting a PEL Study*

Conducting a PEL study provides multiple benefits to CDOT, local agencies, resource agencies, and other project stakeholders. Benefits include, but are not limited to:

- Building on decisions and information developed during the planning process in NEPA by documenting the purpose and need and alternatives analysis during planning
- Developing the purpose and need during long-range planning that provides the foundation for the alternatives analysis both of which are required by NEPA
- Identifying and engaging the stakeholders early in the planning process
- Building collaborative working relationships with resource agencies and the public by enhancing participation and coordination efforts
- Conducting on-going coordinated involvement of resource agencies, FHWA, CDOT, and local agencies
- Increasing consideration of qualitative and quantitative environmental impacts early within the transportation planning process to help ensure that projects selected for funding are able to proceed more quickly through NEPA during the project development phase
- Identifying environmental "priority" resources (i.e., resources that could require avoidance or minimization of impacts during alternatives development; resources with lengthy environmental clearance processes and could affect the project schedule and budget) earlier in the process to tailor the environmental analysis during the NEPA process
- Encouraging environmental stewardship by incorporating environmental analysis and mitigation in the planning process



- Reducing the duplication of work by conducting some detailed quantitative and qualitative environmental resource analysis at the planning stage
- Improving the quality of information needed to make sound planning decisions and develop the most environmentally responsible and sustainable projects
- Assisting with Class of Action determination (CatEx, Environmental Assessment (EA), Environmental Impact Statement (EIS)) prior to project development
- Identifying resource agencies requiring no further involvement during the NEPA process
- Developing a clear project description and purpose and need statement
- Preparing preliminary cost estimates of alternatives for NEPA studies and identification funding
- Developing Programmatic Agreements with resource agency, as applicable by early analysis of environmental resources



3.0 WHAT ARE THE STEPS FOR CONDUCTING A PEL STUDY?

This chapter provides guidance on conducting a PEL study process that responds to all of the items on the FHWA PEL questionnaire, including:

- Developing a Project Scope of Work
- Researching and Defining the Existing and Future Transportation System
- Developing and Evaluating a Reasonable Range of Alternatives
- Researching and Defining Environmental Resources
- Identifying Next Steps for Project Implementation

Note that PEL project teams have the flexibility to conduct a PEL study that responds to all of the FHWA PEL questionnaire items or smaller, more focused PEL studies that respond to pieces of the FHWA PEL questionnaire. Smaller, more focused PEL studies are generally done when there is a particular issue that needs to be studied (such as safety issues or access management in a specific corridor). PEL studies are very project-specific and will not all contain the same level of detail or information. This Handbook provides guidance on all aspects of a PEL study based on the FHWA PEL questionnaire so that guidance is available in one place.

3.1 *Developing a Project Scope of Work*

A project is initiated with the assignment of a Project Manager. Each CDOT Program Engineer assigns a project to a Resident Engineer, who in turn assigns a Project Manager. The Project Manager guides the project through the remainder of the process. The Project Manager is required to involve the Region Planning and Environmental Manager (RPEM) in the scoping of the project, development of a scope of work, and tracking documentation or project milestones. Early coordination with the RPEM and environmental specialists will reduce the potential for time delays, increased costs, and changes to a project. An internal CDOT scoping meeting with the Resident Engineer, Project Manager, RPEM, planning and environmental specialists, and FHWA Operations Engineer is recommended for preparation and review of a project-specific scope of work. The FHWA PEL questionnaire can be a useful tool when developing the scope of work.

The project-specific scope of work should include items such as the following:



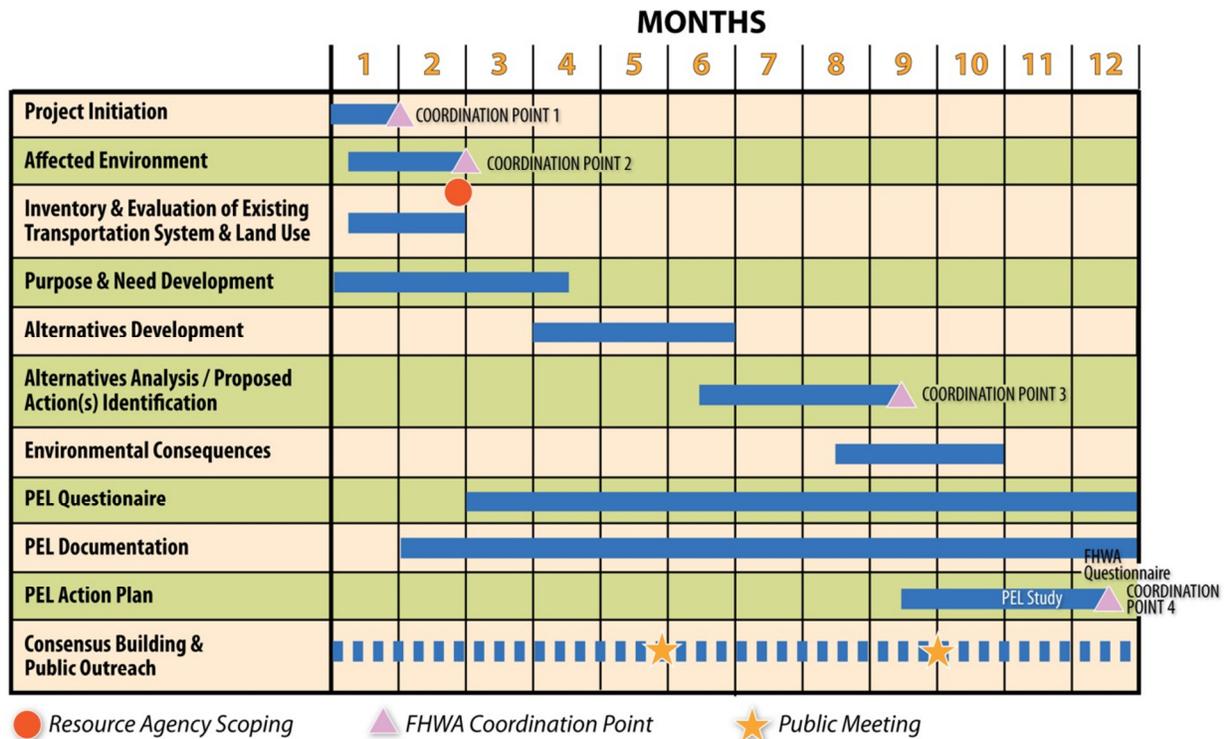
- Identification of the appropriate travel demand model, existing and future transportation system, and affected environment at an appropriate level of detail
- Preparation of a purpose and need
- Development and analysis of alternatives
- Documentation consistent with commonly accepted PEL standards so information developed can be appended or referenced in a NEPA document
- Opportunity for public review of the draft purpose and need and alternatives analysis
- Scoping with resource agencies early in the process
- Coordination with local stakeholders (municipalities, counties, etc.)
- Coordination with FHWA on the purpose and need, alternatives analysis, and PEL documentation
- Completion of the FHWA PEL questionnaire

Figure 3-1 is an example schedule, and an example scope of work is included as **Appendix B**.

An implementation plan identifying the potential funding, phasing, and prioritization of the project is not required by FHWA as part of the PEL and will not be accepted by FHWA as part of the PEL study. However, implementation plans are useful in preparation for project delivery and may be included in the project-specific scope of work at the discretion of the project sponsor.



Figure 3-1 Example PEL Project Schedule



3.2 Identify Purpose and Need for Project

One of the first steps in a PEL study is to identify a purpose and need for a project. The purpose and need statement is typically synonymous with the corridor vision and goals in a corridor planning study, although PELs are not all corridor studies and can be site-specific projects, such as interchanges. The purpose and need statement should be well defined in order to refine the reasonable alternatives and in turn address the transportation problem. The purpose and need does not have to be at the same level of detail as one developed during the NEPA process and will vary based on the type of project (i.e., corridor study versus site-specific study). The more detail provided during planning reduces the amount of time spent on purpose and need development during future NEPA processes. For some projects, the purpose and need statement may be an “umbrella” statement that may require revision when individual projects that come out of the PEL study are initiated. Revisions may be necessary to capture the localized issues that are inherent with individual projects.

Further guidance regarding purpose and need can be found in CDOT's Purpose and Need Guidance, FHWA Technical Advisory T6640.8A (FHWA, 1987), the FHWA Memorandum *The Importance of Purpose and Need* (FHWA, 1990), and the FHWA Memorandum *Regarding Integration of Planning and NEPA Processes* (FHWA, 2005a).





According to CEQ § 1502.13 “Purpose and Need”, the statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the Preferred Alternative. Developing a purpose and need statement is essentially the foundation of NEPA and the decision-making process.

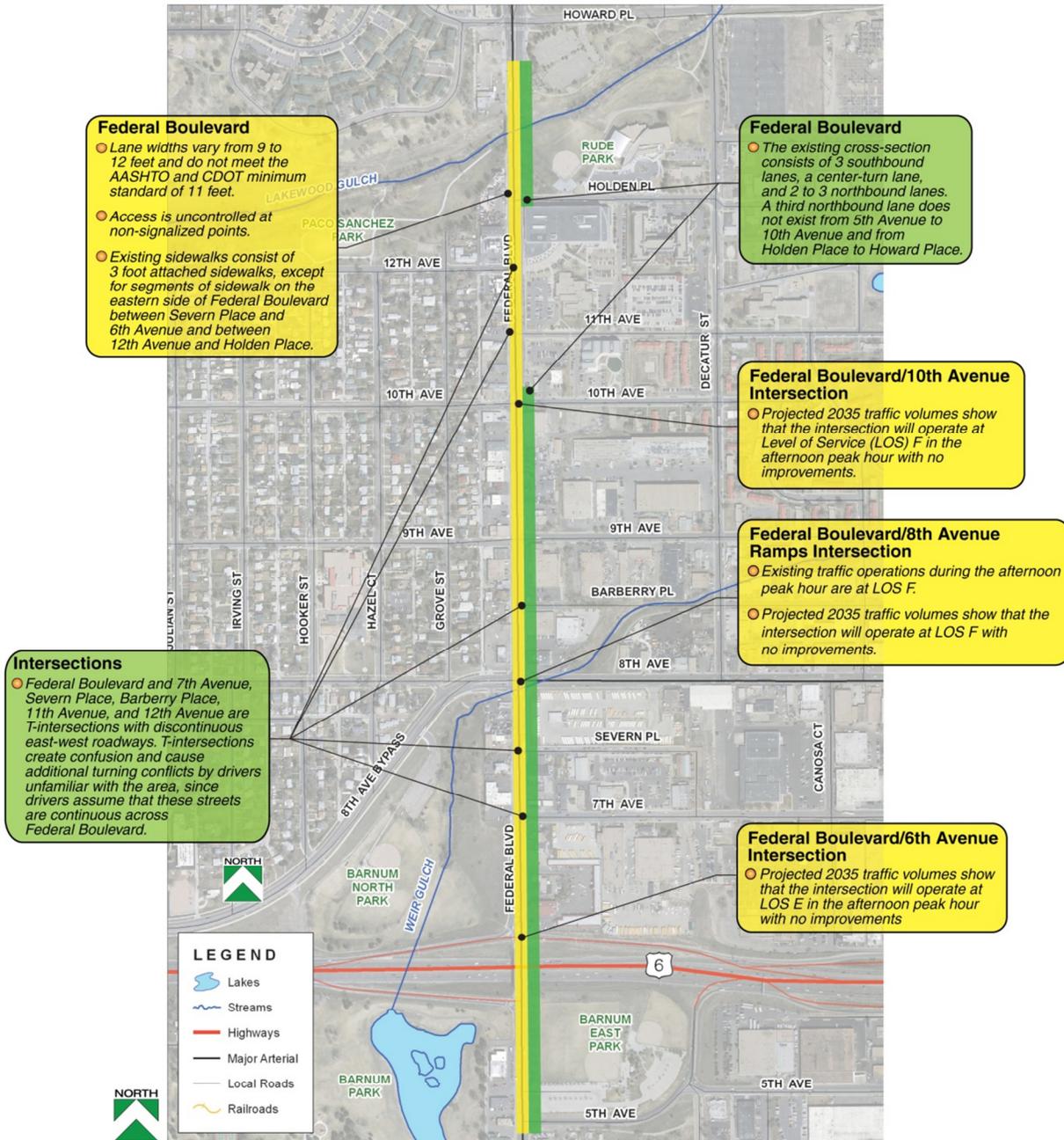
For information and guidance about developing a purpose and need, refer to **Chapter 4** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.2.1 Identify Objectives for the project

The objectives for the project are the design and operational objectives that are established for use in evaluating alternatives for transportation improvements to the study area. **Figure 3-2** provides an example of existing and projected operational and safety deficiencies for an urban corridor in Denver.



Figure 3-2 Example of Existing and Projected Operational and Safety Deficiencies



Source: Felsburg, Holt & Ullevig, 2010





3.2.2 Define Project Extents

The project extents should also be identified based on a preliminary analysis of the independent utility and logical termini of the project. Identification of the project extents is important to not only identifying the resources that will be evaluated but also to determine the resources that will not be evaluated as part of the study. The initial project study area may be refined as the purpose and need statement is development, and the transportation needs are identified for the project.

INDEPENDENT UTILITY/LOGICAL TERMINI

The project must have independent utility and logical termini to the extent that the project provides a functional transportation system even in the absence of other projects in the area. This lays the appropriate groundwork for future NEPA analyses. For PEL studies, the project study area by resources reviewed, and each phase of the project that is identified in the implementation plan, if any, must have logical termini. According to FHWA (1993), logical termini can be defined as:

- Rational end points for a transportation improvement
- Rational geographic extent for a review of the environmental impacts by resource

CDOT follows the general principles identified in FHWA regulation (23 CFR 771.111(f)) for establishing logical termini, as described below:

- Connect logical termini and be of sufficient length to address environmental matters on a broad scope
- Have independent utility or independent significance, i.e. be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements

For further information and guidance about independent utility/logical termini, refer to **Section 4.7** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.2.3 Defining Planning Context

The planning context based on the STP and RTPs is the foundation for development of a PEL study. Decisions made during planning can be reflected in project-specific PEL studies and subsequent NEPA



Further information on logical termini and independent utility can be found at FHWA and FTA, 23 CFR § 771.111(f).

<http://www.fhwa.dot.gov/hep/23cfr771.htm>



For the FHWA PEL questionnaire, the project team will need to identify if there are recent, current, or reasonably foreseeable planning studies or projects in the vicinity and the relationship of the project to those studies.



documentation without revisiting those decisions depending on the transportation planning process that was followed and the magnitude and sensitivity of the related issues. The project team should begin by reviewing the current STP and RTPs within which the corridor is identified, as well as the STIP and TIP for any improvements in the area that are currently programmed. In addition, the project team should review the plans of local governments within the study area. These plans could include:

- Comprehensive plans
- Transportation plans
- Corridor plans
- Parks and recreational plans
- Land use plans
- Neighborhood plans
- Transit plans
- Bicycle/pedestrians plans
- Access management plans
- Drainage plans

CDOT project managers must also work closely with their RPEM and planning staff to understand the required components of the project that have already gone through the planning process and may not need to be revisited. In addition, these plans set the context for the development of alternatives.

3.2.4 Identify the Travel Demand Model

An important part of the scope of work is to identify the travel demand model to be utilized. Identification of the travel demand model and definition of the No-Action Alternative are important elements to develop the needs portion of a purpose and need statement. There are four main types of models that are used for transportation planning and operational analysis. Since this is such an important piece in defining a project, descriptions of each model type and the uses and benefits of each are provided below, including common software packages, the inputs, and general level of effort necessary to use each model type.

REGIONAL TRAVEL DEMAND MODELS

This type of transportation model is designed to forecast travel demand at a regional level. Travel demand forecasting models are typically developed and maintained by a MPO and are used to understand the regional demands on and needs of a transportation system.



The STP/RTP is a 20-year long range plan that provides significant policy direction and forms the basis for transportation planning and development of the transportation system.

The STIP/TIP is a six-year capital programming document that prioritizes projects.



In PEL and NEPA, the existing and the long-range planning horizon year No-Action Alternative traffic operations are essential in determining the need for a project.



The travel demand model used by a project must ultimately be verified/ approved by FHWA.



Common software packages: TransCAD, VISUM, Cube

Basic inputs: land use forecasts and the transportation network (roadway and transit)

Basic outputs: forecasted daily traffic volumes and transit ridership for individual corridors in a region, regional travel patterns including origins/destinations

Typical applications: regional, community, and corridor level analysis

Level of effort required: can be adapted for corridor-level application with a moderate level of effort

ANALYTICAL/DETERMINISTIC TOOLS

Analytical/deterministic tools implement the procedures of the *Highway Capacity Manual* to conduct operational analyses (Transportation Research Board, 2010). The *Highway Capacity Manual* procedures use deterministic mathematical equations to calculate facility levels of service. These tools quickly predict capacity, density, speed, delay, and queuing and are validated with field data and small-scale calibration. Analytical/deterministic tools are good for analyzing the performance of isolated facilities but do not evaluate the interaction between multiple intersections.

Common software packages: Highway Capacity Software, Synchro

Basic inputs: traffic volumes (peak hour), the roadway geometry, and signalization characteristics.

Basic outputs: signalized and unsignalized intersection levels of service, freeway mainline and ramp peak hour operations, etc.

Typical applications: intersection operational analysis

Level of effort required: a low level of effort is required to use these tools

MICROSCOPIC SIMULATION MODELS

Microscopic simulation models are designed to provide detailed simulation of individual vehicles in a network. They evaluate the interaction between each single car, bus, or person in the simulation based on the laneage and geometry and are capable of providing very detailed information about the performance. Due to the fine detail and large amount of information required to develop microscopic simulation models, these models often focus on small areas and are developed for specific corridor and intersection studies. Microscopic models rely on user-defined travel patterns and demands, and do not adjust for capacity constraints. Microscopic simulation models can be particularly useful when evaluating over-saturated traffic conditions.

Common software packages: CORSIM, VISSIM, and SimTraffic (which is packaged with the Synchro analytical/deterministic tool)



Scope of Traffic Analysis

Key aspects of the traffic scoping include:

- **Horizon Years:** Traffic analysis is generally required for the anticipated opening year and the long-range planning horizon year.
- **Time Periods:** Analysis should be geared to recurrent peak traffic conditions.
- **Study Area:** The study area for the traffic analysis will be larger than the area defined for most environmental resources.
- **Model Calibration:** Traffic models should be validated against actual conditions and calibrated to ensure that they are reasonably representing the area and local travel behavior.





Basic inputs: the most extensive and detailed of the four modeling tools; all of the conditions in the study area in required order to evaluate operational performance

Basic outputs: intersection operations (Level of Service - LOS) and network performance including interaction (queuing) between intersections

Typical applications: individual corridors or sub-area system of intersections

Level of effort required: requires a high level of effort and calibration

MESOSCOPIC OPERATIONAL MODELS

Mesoscopic models are relatively new to transportation planning and bridge the divide between travel demand models and microscopic models. Mesoscopic operational models include dynamic network assignment processes that adjust driver route choices based on real-time conditions and are designed to include more detailed aspects of the roadway system (e.g., the location of auxiliary turn lanes, the existence of tolled or managed lanes or facilities, etc.) without the intense resource requirements of a full microscopic simulation model. This model type is particularly useful when analyzing the route decision-making differences resulting from congested conditions or managed lanes, assessing the impacts of intelligent transportation system technologies, supporting the decision-making for work zone planning and traffic management, the evaluation of congestion pricing schemes, and the planning for special events and emergency situations.

Common software packages: DynusT

Basic inputs: the basic requirements for a travel demand model with the potential for increased network information, such as auxiliary lanes, signal timing and coordination, ITS technologies, tolled lanes and high-occupancy vehicle (HOV) lanes

Basic outputs: Travel forecasts in small time increments that account for and demonstrate the impacts of congestion (e.g., rerouting, queuing) over time

Typical applications: regional or corridor level analysis

Level of effort required: due to the recent focus on mesoscopic operation models; this model type is not as readily available as travel demand models. The regional nature of a mesoscopic model requires a considerable effort for development, calibration, and validation. Depending on the existence of an established model and the project requirements and goals, this process requires a moderate to high level of effort.



3.3 Researching and Defining Existing and Future Transportation System

The transportation system includes the entire transportation network within the project extents and includes roadway, rail, transit, bicycle, and pedestrian facilities. Evaluation of the existing and future transportation system conditions provides a framework for alternatives development and evaluation in the PEL study.

3.3.1 Define Existing and Future Transportation System

The purpose of this effort is to gather enough information to provide a complete picture of the existing and future transportation system within the project extents. This effort relies on professional judgment and general knowledge of the project corridor to determine the information sources that are needed to provide an overview of the existing and future transportation system. The level of detail of the information gathered should correspond with the importance of the specific element to the transportation system. Transportation system elements are described below.

ROADWAY NETWORK

Information about the roadway network should be collected and discussed by regional planning categories (freeway, major regional arterial, principal arterial, and minor arterials). Specific information includes:

- Highway through and auxiliary lanes
- Right-of-way and access
- Arterial lanes and access
- Safety records and ridership
- Major concentrations of riders
- Travel markets that use the transportation system – geographic locations of the origins and destinations
- Trip purpose (commuter/non-commuter trips)
- Local versus regional trips
- Average length of trip
- Identification of adjacent and parallel transportation facilities which have an impact on the project corridor
- Signalization, access points, interchanges, ramp lengths
- Other roadway network information includes: current roadway features (such as roadway categorization per the State of Colorado)



A multimodal system accommodates all modes of travel in the transportation system including: bicycle, rail, transit, pedestrian, and automobile.



Highway Access Code), lane configurations, roadway and right-of-way widths, adjacent land owner characteristics, building set-backs, project corridor areas identified as having safety related issues by past CDOT Safety Assessment Reports, and areas with existing Access Control Plans.

TRAFFIC

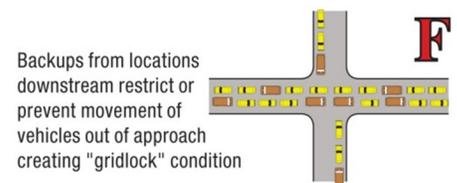
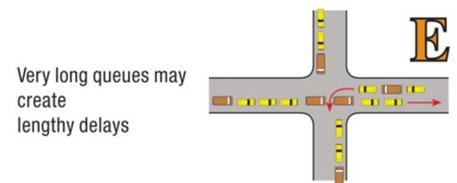
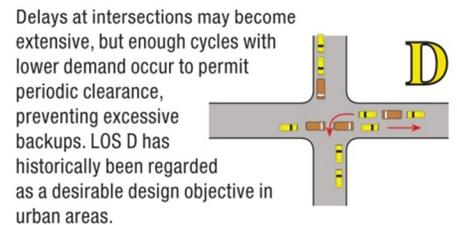
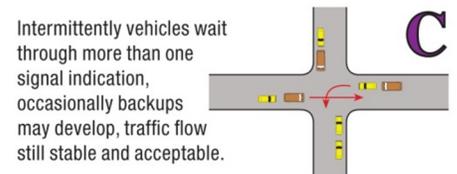
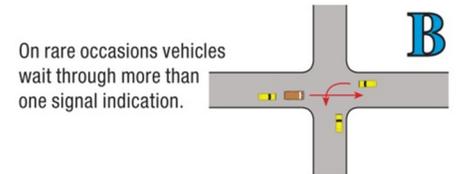
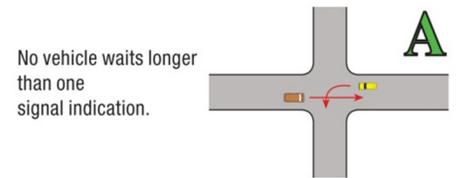
Outputs from travel demand modeling include:

- **Level of Service (LOS)** - Methods documented in the *Highway Capacity Manual* should be used in the traffic analysis (TRB 2010). The result of such an analysis is a LOS rating, which is a qualitative assessment of the traffic flow for a given roadway facility. LOS is described by a letter designation ranging from "A" to "F" with LOS A representing essentially uninterrupted flow, and LOS F representing a breakdown of traffic flow with excessive congestion and delay. LOS is calculated using highway capacity software.
- **Level of Service of Safety (LOSS)** - SAFETEA-LU requires consideration of safety in the transportation planning process. Safety is one of the eight federal planning factors. The analysis employs the concepts of LOSS and pattern recognition to test the frequency and severity of crashes throughout the corridor. The LOSS formulation categorizes four levels of "potential for accident reduction," I through IV. Level I indicates a better than expected safety performance and thus a low potential for accident reduction. Level IV indicates an accident history significantly greater than expected for a given roadway type, thus possessing a high potential for accident reduction.
- AM/PM peak hour traffic volumes
- Hours of congestion at intersections and along freeway intersections
- Turning movement volumes at intersections and interchange ramps
- Additional travel time during peak hours (Travel Rate Index)

RAILROADS

The study area should be assessed for existing and planned freight and passenger rail facilities, including locations, right-of-way widths, location and types of crossings, stations, speed of travel, crossing signalization, safety records, schedules, and usage rates.

The purpose of this assessment is to develop an understanding of the potential constraints and requirements that may be placed on the alternatives analysis/development by the railroad facilities and operations.





For additional information and guidance about railroads, refer to **Section 9.19** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

TRANSIT SERVICES

The PEL study should address transit types, including service levels within the study area. Information about transit services should also include routes and frequency. The study area should also be assessed for planned and existing intermodal connection facilities and stations, such as locations and sizes of park and ride lots, transit stations, and other facilities that encourage intermodal travel. Information about usage rates and capacity should also be collected.

The purpose of this assessment is to identify missing transportation infrastructure, as well as multimodal connections between transit, vehicles, bicycle, and pedestrian facilities that could be addressed as part of the alternatives development/analysis.

BICYCLE & PEDESTRIAN FACILITIES

The study area should be assessed for existing and planned bicycle and pedestrian facilities. Information about bicycle and pedestrian facilities should include locations and widths of routes, sidewalks, paths, trails, crosswalks, and lanes within the study area and connections to other transportation facilities.

The purpose of this assessment is to identify missing bicycle and pedestrian infrastructure, as well as multimodal connections between transit, vehicles, bicycle, and pedestrian facilities that could be addressed as part of the alternatives development/analysis.

UTILITIES

The study area should be assessed for existing and proposed utilities. Utilities include a private or publicly owned line, facility, or system for producing, transmitting, or distributing communications, cable television, power, electricity, light, heat, gas oil, crude products, water, steam, waste, stormwater not connected with highway drainage, or any other similar type of commodity that directly or indirectly serves the public (23 CFR Part 645.105 (m) Utility Relocations, Adjustments, and Reimbursement, Definitions).

The purpose of this assessment is to identify utilities that may require coordination with utility owners and/or relocation during future project development. Early coordination with utility owners assists with identifying



Bicycle and pedestrian facility information is available in CDOT's first Statewide Bicycle and Pedestrian Plan. The plan establishes goals, objectives, and investment criteria for utilizing limited resources to enhance the state's bicycle and pedestrian programs/infrastructure.



potential conflicts with existing and future utility owners. Information concerning existing and future utilities is also useful for the development of alternatives in relation to existing utilities and costing of potential utility relocations. Identification of existing and proposed utilities occurs via a review of utility company maps and field review.

OTHER PROJECTS IN THE STUDY AREA

The PEL study should also identify and consider other transportation projects (on-going and future) in and within the vicinity of the study area. Identification of such projects facilitates early coordination with other projects in the area, helping to achieve consistency and support of these other projects.

3.4 Developing and Evaluating A Reasonable Range of Alternatives

The alternatives analysis process, which includes developing and evaluating a reasonable range of alternatives, is typically synonymous with the “corridor vision strategies” in a planning study.

3.4.1 Develop Alternatives Evaluation Process

PEL studies often develop and screen many alternatives several times. The goal of the screening process is to identify and refine the transportation improvements that best meet the purpose and need of the project, while protecting the human and natural environment. Information from the alternatives evaluation process can then be used to identify preliminary alternatives for analysis and suggest elimination of alternatives that are not reasonable before NEPA. As such, documentation of the alternatives analysis and evaluation is critical if such decisions are to be used during future NEPA processes. Documentation should include criteria (e.g., technical, environmental, economic) used to screen alternatives, a list of the parties involved in establishing alternatives evaluation criteria, and the identification of the point in the process alternatives were eliminated.

According to FHWA/FTA (2005a), if alternatives are eliminated from detailed analysis during the PEL process, the following criteria must be met:

- All the reasonable alternatives under consideration must be fully evaluated in terms of their transportation impacts, capital and operating costs, social, economic, and environmental impacts, and technical consideration
- There must be appropriate public involvement in the PEL alternatives analysis process



For information and guidance about the alternatives analysis process, refer to **Chapter 4** of the *CDOT National Environmental Policy Act (NEPA) Manual* (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.



- The appropriate federal, state, and local resource agencies must be engaged in the planning alternatives analysis
- The results of the PEL alternatives analysis process must be documented

Alternatives screened out during the PEL process because they are infeasible or because they do not meet the purpose and need can be omitted from the detailed analysis of alternatives in the NEPA process, as long as the rationale for omitting them is documented. For additional information and guidance about the evaluation of alternatives, refer to **Section 4.7** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.4.2 Identify Evaluation Criteria

Alternatives may be evaluated with respect to the transportation benefits provided, public input, and environmental consequences. The complexity of the evaluation process is dependent on the complexity of the study. Alternatives evaluation may involve several levels of analysis before the list of alternatives can be narrowed to a reasonable set for final evaluation.

The following is a list of example evaluation criteria:

- Address unsafe physical or operational conditions to reduce crash rates
- Allow roadway to operate at a LOS D or better during peak hours
- Provide access to roadway that adequately supports local land use planning
- Maximize the use of existing infrastructure
- Improve the interconnectivity of the transportation system between different travel modes (pedestrian, bicycle, automobile, and transit [bus and train])
- Enhance multimodal transportation options.
- Avoid and minimize impacts to environmental resources
- Identify and prioritize improvements that can proceed independently
- Maximize sustained benefits
- Minimize throwaway projects
- Enhance local community character
- Support local land use planning



For the FHWA PEL Questionnaire, the project team will need to document the range of alternatives considered, screening criteria, and screening process. The following questions will be answered.

- What types of alternatives were looked at?
- How did you select the screening criteria and screening process?
- For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s).
- Which alternatives should be brought forward into NEPA and why?
- Did the public, stakeholders, and agencies have the opportunity to comment during this process?
- Were there unresolved issues with the public, stakeholders and/or agencies?



These evaluation criteria are examples and should be modified on a project by project basis.

3.4.3 Recommend Alternative(s) for Future NEPA Studies

The Preferred Alternative in NEPA is generally the one that the lead agency believes would best meet the project's purpose and need, while minimizing impacts to the environment (natural, cultural, socioeconomic), and is supported by the public and resource agencies. Alternatives are often adjusted throughout the PEL process to minimize harm to the environment and communities. The Preferred Alternative would typically incorporate avoidance and minimization measures into the design and achieves the best balance between needs, impacts, costs, etc. It is important to note that a single alternative or multiple alternatives may be recommended during the PEL process for further evaluation in NEPA.

Evaluation of alternatives should present all of the alternatives in comparative form in order to best define the issues and provide a clear basis for choice among the options. The analysis must be neutral and objective in regard to all alternatives and cannot be slanted to support a Preferred Alternative over other reasonable and feasible alternatives.

One of the possible outcomes of the alternatives development process is the conceptual design for the alternatives that are being carried into the alternatives evaluation process. In some cases, more design detail may be needed in some areas to support the alternatives evaluation. A cross section study should be developed for the alternatives. This information should be sufficient to determine general cut and fill limits, toe of slope locations, right-of-way needs and easement requirements, earthwork requirements, structural requirements, and water quality facilities.

Conceptual design for the roadway alignments, roadway templates, lane additions, pedestrian facilities, bicycle facilities, transit facilities, and major structures (bridges, grade separations, retaining walls, etc.) included in alternatives is typically completed to approximately five (5) percent design so that planning-level cost estimates can be estimated.

3.4.4 Define No-Action Alternative

Similar to the NEPA process, a PEL study should evaluate a No-Action Alternative. The No-Action Alternative is the alternative that would be selected if a build alternative is not selected as the Preferred Alternative in NEPA, and is used as a baseline comparison for alternatives development and evaluation and environmental analysis purposes. The No-Action Alternative would leave the project study area as it currently is and would not



“...a planning level analysis does not need to rise to the level of detail required in the NEPA process. Rather, it needs to be accurate and up-to-date, and should adequately support the outcome of the long-range transportation plan...”
FHWA/FTA, 2005





provide any improvements beyond the existing transportation system; however, the No-Action Alternative includes safety and maintenance activities that are required to sustain an operational transportation system and other changes which are predictable if action is not taken.

For the purpose of travel demand forecasting (**Section 3.2.4**) and identifying resource impacts that are directly related to traffic volume, such as noise, transportation projects currently planned in the vicinity of the project are included along with the No-Action Alternative. These other transportation planned projects must have committed or identified funds for construction and would be built regardless of any other improvements that are identified as part of the project. Travel demand forecasting predicts traffic conditions that are expected to occur on the transportation system in the current long-range planning horizon year.

For information and guidance about defining the No-Action Alternative, refer to **Section 4.7** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.5 Researching and Defining Environmental Resources

The objective of this step is to collect and summarize relevant baseline environmental resource data (e.g., biological resources, hazardous materials) and provide an “environmental overview” of the existing conditions within the study area. Development of an “environmental overview” section or “existing conditions” section for a PEL study is synonymous with the development of the Affected Environment section of an Environmental Assessment (EA) or Environmental Impact Statement (EIS). Consistent with Council on Environmental Quality (CEQ) 1502.15, the Affected Environment section of an EIS (similar to the “environmental overview” or “existing conditions” section of a PEL) the section should succinctly describe the resources within the study area to be affected by the alternatives under consideration (CEQ, 1978).

The level of detail included in the “environmental overview” or “existing conditions” section is project-specific and will vary based on factors, such as the type and location of the project. For instance, a project requiring design-level detail would require more detail concerning the environmental resources within the study area. The resource information should also consider, build from, and be consistent with other environmental studies that have been completed or are nearing completion in the study area. The environmental overview should not only provide the existing conditions required for evaluating potential environmental consequences of the



transportation strategies within the PEL study, it should also be a strong resource for developing alternatives that will avoid or minimize impacts associated with the project. The more complete the description, the more accurately constraints on development of alternatives and potential impacts can be assessed. Information gathered in this step is intended to assist with future project-related NEPA clearance. Typically, the information included in the PEL study does not contain the level of information or analysis required for a NEPA-level of study and would be supplemented during the actual NEPA process.

At the start of the project, the project team must identify potential environmental “priority” resources in the study area. Environmental “priority” resources include resources that could require avoidance or minimization of impacts during alternatives development and/or resources that typically have lengthy environmental clearance processes. These resources could potentially affect future NEPA actions through alternative development and analysis and could affect the project schedule and budget.

The following resources are often considered “priority” resources and are usually required for a PEL study:

- Wildlife/Threatened and Endangered Species
- Wetlands/Other Waters of the US
- Hazardous Substances
- Historic Resources
- Parks and Recreational Resources
- Land Use
- Floodways/100-Year Floodplains

Analysis for the following resources is considered optional and dependent on project-specific factors:

- Air Quality
- Geologic Resources and Soil
- Water Quality
- Vegetation and Noxious Weeds
- Paleontological Resources
- Social Resources
- Economic Resources
- Environmental Justice
- Noise



For the FHWA PEL Questionnaire, the project team will need to provide information about which resources were reviewed. For each resource reviewed, provide the following:

- Is this resource present in the area and what is the existing environmental condition for this resource?
- In the PEL study, at what level of detail was the resource reviewed and what was the method of review?
- What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?
- How will the data provided need to be supplemented during NEPA?
- List resources that were not reviewed in the PEL study and why. Indicate whether or not they will need to be reviewed in NEPA and explain why.



- Farmlands
- Visual Resources/Aesthetics
- Energy

After the “priority” environmental resources are identified, the project team must identify specific study areas for each resource. Resource-specific study areas will vary and may be the same as the project footprint or larger than the project footprint. For additional resource-specific information and guidance, refer to **Chapter 9** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

Preliminary environmental data collection and analysis varies with the complexity of the project. The baseline information should rely heavily on information already available from agencies responsible for environmental resources (e.g., US Fish and Wildlife Service). Baseline information is typically collected utilizing geographic information systems (GIS) data, combined with a site visit of the study area. For additional information and guidance about GIS, refer to **Section 9.1** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

Other data sources might include relevant environmental or transportation reports pertinent to the study area, previous surveys within the study area, and consultation with resource experts, including external agency personnel.

3.5.1 Assess Potential Impacts

The analysis of potential impacts forms the basis for comparing the PEL study alternatives. NEPA uses the term “impact”, “effect”, and “consequences” synonymously. This Handbook utilizes the term “impact”, consistent with the CDOT NEPA Manual (CDOT, 2008, as amended). Impacts may be environmental (e.g., ecological, historical) or social, and may be either beneficial or adverse. Beneficial impacts may occur when an alternative improves a situation (e.g., lessens serious traffic congestion).

DIRECT AND INDIRECT IMPACTS

This Handbook uses the term “direct impacts” as specified in NEPA regulations (CEQ, 40 CFR § 1508.08). Direct impacts are caused by the action and occur at the same time and place. For example, highway construction that occurs within a wetland could completely remove the wetland or modify the structure and function of the wetland. This would therefore be a direct impact on wetlands.



This Handbook uses the term “indirect impacts” as specified in NEPA regulations (CEQ, 40 CFR § 1508.08). Indirect impacts are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include those related to induced changes in patterns of land use, population density or growth rate, and related impacts on air and water and other natural systems, including ecosystems. For example, highway construction that alters the hydrology of an area could increase or decrease overland water flow to nearby wetlands and streams, which would have an indirect effect on the structure and function of these water resources. Additional indirect impacts could occur to plant and animal species that inhabit the affected wetlands and streams.

Early in the planning stages, the project team should be able to identify potential environmental impacts and “priority” environmental resources in the study area. The level of analysis will vary based on project-specific factors; however, in general, the analysis should be of sufficient detail to screen out “fatal flaws” associated with design alternatives. The description and analysis of impacts must be supported by the information and data presented in each of the specific resource sections. As previously discussed, data and analyses should be commensurate with the importance of the potential impact, as identified during the scoping process (**Section 5.0**), with less important material summarized, consolidated, or simply referenced.

For additional information and guidance about assessing potential impacts for a project, refer to **Section 4.9** and **Chapter 9** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

CUMULATIVE IMPACTS

This Handbook uses the term “cumulative impacts” as defined in Section 1508.7 of (CEQ, 40 CFR § 1500 – 1508). A key consideration of cumulative impacts is not just the impacts of the Preferred Alternative in NEPA but the impacts of other projects within the study area. Cumulative impacts result when the effects of an action are added to or interact with the effects of other actions in a particular place and within a particular time. It is the combination of these effects, and any resulting environmental degradation, that is the focus of the cumulative impact analysis. While impacts can be differentiated by direct, indirect, and cumulative impacts, the concept of cumulative impacts takes into account all disturbances because cumulative impacts result in the compounding of the effects of all actions over time. The cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other



activities affecting that resource no matter what entity (federal, non-federal, or private) is taking the action.

The goal of considering cumulative impacts in a PEL study is to provide a baseline for future cumulative impacts analysis rather than rising to the level of analysis required during the NEPA process. Key resources for analysis should be identified based on factors such as project location (e.g., urban corridor versus undeveloped mountain corridor), direct and indirect impacts of the alternatives, resource trends (e.g., consider current status/quality of affected resources), and the potential for impact of other actions on the resources. Typical resources that require cumulative impacts analysis during the NEPA process include air quality, water resources, wetlands, threatened/endangered species, and historic. The analysis includes defining geographic and temporal limits; identifying past, present and reasonably foreseeable actions; defining affected resources; and assessing the impacts of these actions. Depending on the project-specific PEL study and the project-specific scoping with CDOT and FHWA, the cumulative impacts analysis may be more focused on identifying the resources that will require a future cumulative impacts analysis during NEPA and the rationale for the selected resources.

For additional information and guidance about assessing cumulative impacts for a project, refer to **Section 9.27** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.5.2 Identify Mitigation Strategies

The PEL study should identify potential mitigation strategies for impacts identified with the alternatives. Per the CDOT NEPA Manual (2008, as amended), mitigation strategies include measures that:

- Rectify the impact by repairing, rehabilitating, or restoring the affected environment
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action
- Compensate for the impact by replacing or providing substitute resources or environments (CEQ, 40 CFR 1508.20)

The mitigation section of the PEL document should include:

- Mitigation strategy for each alternative
- Basis for the mitigation strategies and flow chart of the decision process



“The nature of the planning process is to look broadly at future land use, development, population increases, and other growth factors. This analysis could provide the basis for the assessment of cumulative and indirect impacts required under NEPA.” FHWA/FTA, 2005a (pg. 11)



- Appropriateness, reasonableness, and timing of the mitigation strategies relative to project planning and implementation
- Coordination required to obtain agreement on mitigation strategies
- Implementation and monitoring of mandated mitigation strategies
- Reasonableness and reliability of the mitigation strategies

For additional information and guidance about mitigating potential impacts for a project, refer to **Chapter 9** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

3.6 Identifying Next Steps for Project Implementation

A PEL study is intended to provide the framework for the long-term implementation of transportation improvements as funding is available and to be used as a resource for future NEPA documentation. In addition, a PEL study identifies issues that require additional evaluation in any future NEPA documentation.

3.6.1 Planning for Subsequent NEPA Process

The FHWA PEL questionnaire is consistent with the 23 CFR 450 (planning regulations) and other FHWA policy on Planning and Environmental Linkages process. The FHWA PEL questionnaire outlines the framework for future NEPA study. The FHWA PEL questionnaire is intended to act as a summary of the PEL process and ease the transition from the PEL study to a NEPA analysis. There may be no overlap in personnel between the PEL and NEPA phases of a project, and much (or all) of the history of decisions, etc, is lost. Different planning processes take projects through analysis at different levels of detail. Without knowing how far, or in how much detail a planning study went, NEPA project teams often redo work that has already been done. Planning teams need to be cautious during the alternatives development and evaluation process; alternatives evaluation should focus on purpose and need/corridor vision, fatal flaw analysis, and possibly mode selection. This may help minimize problems during discussions with resource agencies. Alternatives that have fatal flaws or do not meet the purpose and need/corridor vision cannot be considered viable alternatives, even if they reduce impacts to a particular resource.

The PEL study should identify what needs to happen before a future NEPA process can occur. These things could include, but are not limited to:

- Resources that need additional research



- Amendments to local agency land use plans
- Potential funding sources

3.6.2 Implementation Plan

In cases where a project is anticipated to be implemented in more than one phase, care must be taken to ensure that the transportation system operates acceptably at the conclusion of each phase. This is referred to as “independent utility” (**Section 3.2.2**). Additionally, it must be demonstrated that compliance with other statutory requirements will not be jeopardized.

Any mitigation strategies needed in response to project impacts must be implemented with the phase in which the impacts occur, rather than deferred to a later phase.

The establishment of phases for the project should meet these criteria:

- **Independent Utility/Logical Termini** – Each phase should have independent utility and logical termini to the extent that the phase provides a functional transportation system even in the absence of other phases
- **Elements of Purpose and Need** – Each phase should contribute to meeting the purpose and need for the entire project
- **Environmental Impacts** – Individual phases should avoid the introduction of substantial additional environmental impacts that cannot be mitigated
- **Mitigation Paired with Impacts** – Each phase should include appropriate mitigation strategies to match the environmental impacts of that phase

Establishment of meaningful project phases and connecting them with potential funding packages helps to further the projects identified in the PEL study toward becoming reality. FHWA and CDOT have identified a set of criteria to be used as guidelines in establishing logical project phases. In addition to these criteria, logical sequencing of phases in terms of constructability and operation should be considered and a general priority of needs applied. Given the variability in the amount and timing of funding, the project team must work with the project stakeholders to identify and prioritize projects for a range of funding scenarios to ensure that the study area is getting maximum benefit for the available dollar. As part of this, the project team should investigate various state and federal funding mechanisms, such as Colorado Funding Advancements for Surface Transportation and Economic Recovery funds, surface treatment, enhancement, STP/RTP metro, that can be used in part or combination to develop larger project packages. Business investment districts, tax increment financing, and



federal programs, such as Livable Communities, may be reviewed for applicability in the study area.

For a PEL study, the project team may develop an implementation plan that:

- Examines and prioritizes the transportation needs
- Establishes logical project phases
- Identifies the funding that can be reasonably expected to be available for major transportation projects within the current planning horizon, as identified in the RTP and STP
- Considers the projected funding sources with the transportation needs during development of the implementation plan, the project team should identify logical project phases that can be implemented as a single project based on funding availability, as well as groups of project phases that can be packaged as a larger project if funding becomes available. An example implementation plan is included in **Table 3-1**.



Table 3-1 Example Implementation Plan

Phase	Phase Package Description Elements Included	Sequencing Restrictions	Probable Cost	Comments
1 Most Critical on I-25	I-25/Santa Fe Interchange with Lane Continuity through Alameda <ul style="list-style-type: none"> Reconstruction of I-25/Santa Fe Interchange Construction of flyover ramp from northbound Santa Fe Drive to northbound I-25 Replacement of Alameda Avenue bridge over I-25 Reconstruction of I-25 under Alameda with associated sump and drainage improvements 	None	\$81 Million <u>\$3 Million ROW</u> \$84 Million	Northbound and southbound structures at Santa Fe both rated as structurally deficient with sufficiency ratings of 20.2 and 22.8, respectively. A sufficiency rating of 50 or greater is considered acceptable. Continuous auxiliary lanes on I-25 (US 85 lane balance) will not be fully addressed until I-25 Mainline Widening (Phase 3 [Not Shown]) is complete.
1 Most Critical on US 6	US 6/Federal Bridge and Ramps, excluding Braided Ramp and West Side US 6/Federal Ramps <ul style="list-style-type: none"> Closure of Bryant Street Interchange to US 6 Replacement of Federal Boulevard bridge over US 6 Reconfiguration/reconstruction of ramps Reconfiguration of Barnum East Park 	None	\$20 Million <u>\$3 Million ROW</u> \$23 Million	
2 Most Critical on I-25	I-25/Alameda Interchange and Alameda Bridge over South Platte <ul style="list-style-type: none"> Alameda widening from Lipan Street to Santa Fe Drive Replacement of Alameda Avenue bridge over the South Platte River Construction of Lipan Street and closure of Platte River Drive north of Alameda Avenue Widening of Lipan Street south of Alameda Avenue Replacement of Alameda Avenue ramps to I-25 	Must follow or be concurrent with I-25/Santa Fe Interchange	\$18 Million <u>\$5 Million ROW</u> \$23 Million	





4.0 WHAT ARE THE DOCUMENTATION REQUIREMENTS FOR A PEL STUDY?

This chapter provides information on the various documentation requirements for a PEL study. Thorough documentation of the PEL study analysis and decisions made is a crucial component that is needed to transition into NEPA. Information from the PEL study must be documented in a form that can be included in the NEPA document as an appendix or by reference. If any information is incorporated by reference, it must be readily available for agency or public review. Typically, the information from the PEL study does not contain the level of information or analysis required for a NEPA-level of study and would be supplemented during the actual NEPA process; however, the actual level of detail for a PEL study should be clarified during development of the project scope of work (**Section 3.1**). Documentation requirements should be discussed and agreed-upon at the beginning of the study.



“Any document incorporated by reference must be reasonably available for inspection by potentially interested persons within the time allowed for comment.”
FHWA/FTA, 2005b (pg. 3)

4.1 FHWA Involvement

The development of Coordination Points with FHWA is a PEL study requirement that is necessary to inform FHWA on the status of the project and give FHWA the opportunity to provide input on specific project elements (**Figures 1-1** and **3-1**). These Coordination Points are intended to help reduce delay in the overall study review process and facilitate incorporation of the PEL study into future NEPA.

The following four Coordination Points are required for FHWA involvement during the PEL process.

Coordination Point 1 – Project Initiation

Coordination Point 2 – Purpose and Need

Coordination Point 3 – Alternatives

Coordination Point 4 – PEL Document (draft and final review)

Each Coordination Point coincides with a project milestone and is summarized below. **Appendix C** contains example FHWA and CDOT acceptance letters.

4.1.1 Coordination Point 1 – Project Initiation

This Coordination Point allows FHWA to provide input on the purpose and scope of the PEL study during project initiation. The scope of work will be revised based on the output of Coordination Point 1, as appropriate.



4.1.2 Coordination Point 2 – Purpose and Need

This Coordination Point allows FHWA to provide input on the purpose and need statement. The purpose and need statement will be revised based on the output of Coordination Point 2, as appropriate.

4.1.3 Coordination Point 3 – Alternatives

The purpose of this Coordination Point is to ensure that FHWA has a meaningful opportunity to provide input during alternatives development, refinement, evaluation, and the recommendation of alternatives to be evaluated in future NEPA studies. The output of Coordination Point 3 will be a decision on:

- Appropriate methodologies to be used and the level of detail required in the analysis of each alternative
- Alternatives to be carried forward into the PEL study
- Documentation of alternatives development, refinement, and evaluation

4.1.4 Coordination Point 4 – PEL Document

Based on the output of Coordination Point 3, a PEL document will be prepared.

The output of Coordination Point 4 will be concurrence on:

- Adequacy of the document
- Specification as to whether changes or additional information is needed for the final document

At the conclusion of Coordination Point 4, a final project acceptance letter should be obtained from FHWA to document FHWA's involvement with the study (**Appendix C**). The FHWA acceptance letter will document the strengths of the PEL study, the next steps necessary for the project to move forward into NEPA, and acknowledgement of the decisions made in the PEL.

4.2 Public Involvement

Documentation of the public involvement process associated with a PEL study is critical. Detailed information about the public involvement process is included in **Chapter 5** of this Handbook.

Per the CDOT NEPA Manual (CDOT, 2008, as amended), it is important to document and maintain a summary of public involvement activities and outcomes of the activities as they occur during the process. Documentation should be prepared as quickly after the activity as possible. Basic



documentation that should be collected for all public involvement activities includes information, such as:

- Advertisements used for activity/event
- Copies of handouts
- Documentation of displays or exhibits used
- Purpose for event/activity
- Number of public meetings
- Locations, times, and dates of public meetings
- Meeting attendance (i.e., sign-in sheets)
- Meeting summaries (i.e., transcripts, meeting notes)
- Contact lists

The public involvement documentation should become part of the project file and included as part of the PEL document itself so that the documentation can be carried forward into any future NEPA process.

For additional information and guidance about public involvement documentation, refer to **Section 7.4** of the CDOT NEPA Manual (CDOT 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.

4.3 FHWA PEL Questionnaire

The FHWA PEL questionnaire is one tool that should be used to document the PEL study. The PEL questionnaire is intended to:

- Inform planners about the requirements and options to consider while developing a planning study with a goal to inform the NEPA process
- Document and share relevant planning information with NEPA practitioners to build understanding about a project – both the information studies and areas that require more analysis

The questionnaire provides a summary of the planning process and includes questions related to corridor vision/purpose and need, range of alternatives and evaluation criteria, agency and public coordination, environmental resources, and the relationship to future NEPA documents. When completed, the questionnaire is intended to provide documentation with the submittal of the planning study (e.g., as part of executive summary, chapter, or appendix). The questionnaire can then be used as documentation as a project transitions from planning to NEPA analysis. A copy of the questionnaire is included in **Appendix A** and available online at:



http://www.coloradodot.info/programs/environmental/planning-env-link-program/PEL_Questionnaire_Final_Version.docx/view.

4.4 Technical Reports

The technical reports prepared for a PEL study, to supplement the PEL document, will be project-specific and identified based on the characteristics of the study area and on input from the stakeholders. Possible technical reports include:

- Safety Assessment
- Traffic and Multimodal Operations
- Environmental Justice Evaluation
- Air Quality Impact Analysis
- Noise Impact Analysis
- Parks and Recreational Resources
- Biological Resources
- Modified Phase I Environmental Site Assessment
- Wetland Determination
- Historic Survey
- Archaeological Survey
- Paleontological Survey

The technical analyses conducted should generally be consistent with NEPA, its implementing regulations, and with FHWA and CDOT guidelines. In identifying which technical reports should be prepared as part of a PEL study, the project team will evaluate which of the possible technical reports are necessary for documentation of the decisions made during the PEL process and those that will be necessary for future NEPA documentation or are tied to separate regulatory drivers, such as the Clean Water Act, Endangered Species Act, etc. It is important to note that not all of the possible technical reports identified are necessary for a PEL study but may be applicable depending upon the field conditions of the study area.

4.5 PEL Document

Since the goal of the PEL study is to streamline future NEPA projects and to avoid having to redo analysis conducted in the PEL study during NEPA, the project team should coordinate the PEL decision-making process directly with the required NEPA project documentation and complete the FHWA PEL questionnaire. **Figure 1-1** depicts the key elements of the PEL process and shows how a successful PEL study results in a stakeholder supported



solution with a minimal level of additional effort required to complete the subsequent NEPA evaluation. **Appendix D** contains an example table of contents.



5.0 WHAT ARE THE RECOMMENDATIONS FOR STAKEHOLDER INVOLVEMENT DURING A PEL STUDY?

This chapter provides guidance on stakeholder involvement and key Coordination Points for CDOT PEL studies. It is not intended to cover public involvement requirements related to other state, federal, local, or Tribal laws and regulations. Similar to the CDOT planning and NEPA processes, stakeholder involvement is a key component of PEL that encourages stakeholders to participate in the decision-making process from cradle to grave. The goal of a stakeholder involvement program is to provide appropriate involvement throughout the process and solicit feedback from the community on the purpose and need statement, alternatives developed, the alternatives evaluation process, the environmental analysis, and mitigation strategies. The comments received are then utilized as part of the alternatives evaluation process and used as a resource for future NEPA documentation.

In general, stakeholder involvement for CDOT PEL projects follows **Chapter 7** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>. There are also specific public involvement requirements as part of the planning process that should be incorporated as appropriate. Guidance is located online at: <http://www.coloradodot.info/programs/statewide-planning/public-involvement.html>.

5.1 Identify Project Stakeholders

Early and continuous engagement of stakeholders is one key to a successful PEL study. Stakeholders can include the general public, businesses, governmental agencies, non-governmental organizations, and other interest groups who either have, or perceive they have an interest in the PEL study. The range of stakeholders is not limited to the geographic jurisdiction of the study, but includes all individuals/groups that may be potentially affected by the project. These stakeholders will vary in composition depending on the size of the PEL study and the questions that are being asked/addressed by the PEL study. Stakeholder participation helps to assure better acceptance of the overall study and recommendations that come out of the study. Stakeholder involvement also fosters relationship building within agencies, between agencies, and with the public. Therefore, one of the top priorities during the PEL process is the identification of project stakeholders, which



For the FHWA PEL Questionnaire, the project team will need to provide:

Agency Coordination:

- Provide a synopsis of coordination with federal, tribal, state, and local environmental, regulatory, and resource agencies.
- What transportation agencies did you coordinate with or were involved in the PEL study?
- What steps will need to be taken with each agency during NEPA scoping?

Public Coordination:

- Provide a synopsis of your coordination efforts with the public and stakeholders.
- Did the public, stakeholders, and agencies have an opportunity to comment during the alternative screening process?
- Were there unresolved issues with the public, stakeholders, and agencies?



can be accomplished by talking to key decision-makers within the study area.

5.1.1 Resource and Regulatory Agencies

The Transportation Environmental Resource Council (TERC) was formed in 2002 to provide a forum for federal, state, and local resource agencies to discuss state transportation decisions and plan for environmental stewardship. In 2009, 15 TERC member agencies signed a PEL Partnering Agreement, which was developed to encourage the use of a PEL approach in an effort to meet agency needs, expedite transportation project delivery, and to foster proactive working relationships among governmental agencies. The Agreement fosters continued coordination, “including our commitment to active participating in the PEL approach, effectively communicating our agency’s needs to the transportation agencies, and providing resources as agreed upon to assure that the planning processes are able to move forward” (TERC, 2009). This PEL Partnering Agreement is the framework for coordination with resource and regulatory agencies during the PEL process.

All federal, state, and local agencies with jurisdiction by law or special expertise with regard to issues related to the PEL study should be invited to participate in the process. Regulatory and/or resource Agencies to consider include, but are not limited to:

- US Fish and Wildlife Service
- US Army Corps of Engineers
- United States Environmental Protection Agency
- Colorado Department of Public Health and Environment
- State Historic Preservation Office
- Colorado Parks and Wildlife

Coordination with resource and regulatory agencies is necessary to assure that all applicable constraints, as well as potential mitigation needs and opportunities, have been identified during the process. The coordination opportunities are generally project-specific and vary for different resource and regulatory agencies based on the issues within a given study area. However, in the event that agencies choose not to participate or only participate occasionally throughout the process, the PEL products can still be carried forward into the NEPA process. All relevant agencies will likely be invited to participate in the NEPA process although the PEL process gains acceptable credit for agency scoping in NEPA.

Resource agencies should be invited to participate in one-on-one and/or joint scoping meetings. Resource agencies provide specific technical expertise and regulatory oversight on various environmental issues and



The TERC website is available at:

<http://www.coloradodot.info/programs/environmental-transportation-environmental-resources-council-terc>



“...Federal, Tribal, and State and local environmental, regulatory, and resources agencies are able to share data on particular resources, which can play a critical role in determining the feasibility of a transportation solution with respect to environmental impacts.”
FHWA/FTA, 2005b (pg. 4)



potential project impacts. Other agency involvement activities may include regular progress committee meetings held with agency participants through a Project Management Team. Key questions and concerns, (such as the level of impact associated with resource-specific considerations and cumulative impacts) can be discussed at these meetings in detail.

5.1.2 Local Agencies

At the start of the PEL study, all local agencies with jurisdiction adjacent to the study area should be invited to participate. These agencies provide vital information concerning existing and future land uses and transportation-related data that can be very helpful for the study. Also, coordination with the surrounding local agencies helps to support the overall study results and the decision-making process, which transitions into future NEPA processes.

5.1.3 Public

As previously discussed, it is important to include the general public at the start of the PEL process because it helps to identify issues, assure better acceptance of the overall study and recommendations that come out of the study, while fostering relationships with the public.

5.1.4 Other Stakeholders

Other stakeholders in the process may include non-governmental organizations, private entities, Tribal governments, planning and development partners with knowledge of plans and policies that affect the study area, elected officials, and businesses within the area.

5.2 Identify Participation Methods

There are a variety of public participation techniques that are appropriate for use at various stages in the PEL process. Stakeholder involvement comes in many forms, as described below:

- Outreach techniques (e.g., news releases) are well-suited for use both during the early steps in the PEL process and as a way to keep the public informed throughout the process.
- Data-gathering techniques (e.g., surveys) are useful to obtain information from the public or other selected stakeholder groups.
- Participation techniques (e.g., public hearings, smaller group meetings, technical committees, visualizations, electronic town halls) are useful for obtaining various types of input



For information and guidance about public outreach techniques and examples, refer to **Chapter 7** of the CDOT NEPA Manual (CDOT, 2008, as amended), located online at:

<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>.





6.0 PEL BEST PRACTICES IN COLORADO

Table 6-1 includes some of the best practices from PEL studies that have occurred in Colorado to date.

Table 6-1 PEL Best Practices in Colorado

Project Description	PEL Best Practices
<p>US 50 West PEL Study: Swallows Road to Baltimore Avenue</p> <p>The US 50 West PEL Study was conducted along US 50 between Pueblo West and Pueblo in southern Colorado.</p>	<p>Need for agency coordination and an unbiased approach</p> <p>Facilitate visioning of corridor</p> <p>Prepare a simple purpose and need statement</p> <p>Emphasize development of a travel demand model</p>
<p>Parker Road Corridor Study</p> <p>The Parker Road Corridor Study was conducted along Parker Road (State Highway 83) between Hampden Avenue and E470 in Aurora, Colorado.</p>	<p>Reference information for resulting construction projects</p> <p>Provide specific project-level information for future projects that come out of a PEL study to succeed</p>
<p>Federal Boulevard (5th Avenue to Howard Place)</p> <p>The study was conducted along Federal Boulevard, from 5th Avenue to Howard Place, Denver, Colorado.</p>	<p>Conduct meaningful and focused public involvement to receive feedback from the public but not to overstate the ability of the project to meet expectations and immediate needs</p> <p>Coordinate with adjacent projects</p> <p>Emphasis on “priority” environmental resources that could potentially affect future NEPA actions through alternative development and analysis</p> <p>Conduct a cumulative impact analysis if the recommended alternative(s) may be phased over the long-term</p>
<p>Arapahoe Road Corridor Study</p> <p>The Arapahoe Road Corridor Study was conducted along Arapahoe Road, between I-25 and Parker Road in Centennial, Colorado.</p>	<p>Have a structured agency involvement process and engage resource agencies early in the process</p> <p>Consider the context of the corridor when identifying what public involvement notification methods will be used; Move forward multiple alternatives into NEPA rather than just one alternative</p> <p>Analyze and screen the full universe of alternatives during PEL as a way to help accelerate future NEPA processes</p> <p>Have a structured process for check-in with FHWA so results are valid for NEPA.</p>



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APPENDIX A
FHWA PEL QUESTIONNAIRE



This questionnaire is intended to act as a summary of the Planning process and ease the transition from the planning study to a NEPA analysis. Often, there is no overlap in personnel between the planning and NEPA phases of a project, and much (or all) of the history of decisions, etc. is lost. Different planning processes take projects through analysis at different levels of detail. Without knowing how far, or in how much detail a planning study went, NEPA project teams often re-do work that has already been done. Planning teams need to be cautious during the alternative screening process; alternative screening should focus on purpose and need/corridor vision that could include an alternative enhancement, fatal flaw analysis and possibly mode selection. This may help minimize problems during discussions with resource agencies. Alternatives that have fatal flaws or do not meet the purpose and need/corridor vision cannot be considered viable alternatives, even if they reduce impacts to a particular resource. This questionnaire is consistent with the 23 CFR 450 (Planning regulations) and other FHWA policy on Planning and Environmental Linkage process.

Instructions: These questions should be used as a guide throughout the planning process, not just answered near completion of the process. When a PEL study (i.e. corridor study) is started, this questionnaire will be given to the project team. Some of the basic questions to consider are: "What did you do?", "What didn't you do?" and "Why?". When the team submits the study to FHWA for review, the completed questionnaire will be included with the submittal. FHWA will use this questionnaire to assist in determining if an effective PEL process has been applied before NEPA processes are authorized to begin. The questionnaire should be included in the planning document as an executive summary, chapter, or appendix.

1. Background:
 - a. What is the name of the PEL document and other identifying project information (e.g. sub-account or STIP numbers)?
 - b. Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were conducted.
 - c. Provide a description of the existing transportation corridor, including project limits, modes, number of lanes, shoulder, access control and surrounding environment (urban vs. rural, residential vs. commercial, etc.)
 - d. Who was the sponsor of the PEL study? (CDOT, Local Agency, Other)
 - e. Who was included on the study team (Name and title of agency representatives, consultants, etc.)?
 - f. Are there recent, current or near future planning studies or projects in the vicinity? What is the relationship of this project to those studies/projects?
2. Methodology used:
 - a. Did you use NEPA-like language? Why or why not?
 - b. What were the actual terms used and how did you define them? (Provide examples or list)
 - c. How do you see these terms being used in NEPA documents?
 - d. What were the key steps and coordination points in the PEL decision-making process? Who were the decision-makers and who else participated in those key steps? For example, for the corridor vision, the decision was made by CDOT and the local agency, with buy-in from FHWA, the Corps, and USFWS.
 - e. How should the PEL information below be presented in NEPA?
3. Agency coordination:
 - a. Provide a synopsis of coordination with federal, tribal, state and local environmental, regulatory and resource agencies. Describe their level of participation and how you coordinated with them.
 - b. What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved in the PEL study?
 - c. What steps will need to be taken with each agency during NEPA scoping?
4. Public coordination:
 - a. Provide a synopsis of your coordination efforts with the public and stakeholders.
5. Corridor Vision/Purpose and Need:



- a. What was the scope of the PEL study and the reason for doing it?
 - b. Provide the corridor vision, objectives, or purpose and need statement.
 - c. What steps will need to be taken during the NEPA process to make this a project-level purpose and need statement?
6. Range of alternatives considered, screening criteria and screening process:
- a. What types of alternatives were looked at? (Provide a one or two sentence summary and reference document.)
 - b. How did you select the screening criteria and screening process?
 - c. For alternative(s) that were screened out, briefly summarize the reasons for eliminating the alternative(s). (During the initial screenings, this generally will focus on fatal flaws)
 - d. Which alternatives should be brought forward into NEPA and why?
 - e. Did the public, stakeholders, and agencies have an opportunity to comment during this process?
 - f. Were there unresolved issues with the public, stakeholders and/or agencies?
7. Planning assumptions and analytical methods:
- a. What is the forecast year used in the PEL study?
 - b. What method was used for forecasting traffic volumes?
 - c. Are the planning assumptions and the corridor vision/purpose and need statement consistent with the long-range transportation plan?
 - d. What were the future year policy and/or data assumptions used in the transportation planning process related to land use, economic development, transportation costs and network expansion?
8. Resources (wetlands, cultural, etc.) reviewed. For each resource or group of resources reviewed, provide the following:
- a. In the PEL study, at what level of detail was the resource reviewed and what was the method of review?
 - b. Is this resource present in the area and what is the existing environmental condition for this resource?
 - c. What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?
 - d. How will the data provided need to be supplemented during NEPA?
9. List resources that were not reviewed in the PEL study and why? Indicate whether or not they will need to be reviewed in NEPA and explain why.
10. Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where it can be found.
11. Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.
12. What needs to be done during NEPA to make information from the PEL study available to the agencies and the public? Are there PEL study products which can be used or provided to agencies or the public during the NEPA scoping process?
13. Are there any other issues a future project team should be aware of?
- a. Examples: Utility problems, access or ROW issues, encroachments into ROW, problematic land owners and/or groups, contact information for stakeholders, special or unique resources in the area, etc.



APPENDIX B
EXAMPLE CORRIDOR PEL SCOPE-OF-WORK



This scope-of-work establishes the consultant's individual task responsibility. The consultant shall maintain the ability to perform all work tasks which are indicated below, in accordance with the forms and conditions contained herein, and the applicable CDOT standards. Selected work tasks shall be assigned only after coordination and consultation with CDOT. The Consultant is also responsible for coordinating the required work schedule for those tasks accomplished by CDOT and other agencies.

The following activities of communication, consensus building, project team reviews, conceptual design, data gathering, documentation, and formal public notice should be planned by the Consultant and coordinated with the CDOT/Project Manager (PM). The time of their accomplishment will overlap and parallel paths of activity should be planned to finish the development phase in accordance with the shortest possible schedule. The type and number of meetings, documents, etc., will depend on the category and characteristics of the project work. A Project Management Plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator before starting the work.

TASK 1 - PROJECT INITIATION AND CONTINUING REQUIREMENTS

A. Project Management Plan

The Consultant shall provide a Project Management Plan for management coordination and control to ensure successful and timely completion of this study. At the beginning of work under this contract, the Consultant shall prepare a detailed Project Management Plan. The Project Management Plan shall:

- A. Include a detailed work plan, including schedule and cost breakdown for each sub-task described in this scope of services
- B. Identify the method for tracking budget and schedule for the duration of the project
- C. Establish key project contacts within the project team and other stakeholders
- D. Establish the project milestones
- E. Include a Quality Control Plan that describes the Quality Control Process to be used on the project

The Consultant shall submit monthly cost and schedule reports to enable project monitoring. The contract budget and schedule shall be regarded as the baseline against which status and progress are measured and reported.

The Consultant and the CDOT Project Manager (Project Manager) shall meet at least monthly to review the cost, schedule status and progress of the work, as well as address unanticipated problems and potential solutions. Twelve (12) monthly progress meetings with the CDOT Project Manager and the Consultant will be held. The Consultant shall prepare status presentations at key milestones to update the Agencies on the status and progress of the work. The project milestones include: Scoping, Purpose and Need Statement, Alternatives Development/Analysis, Proposed Action(s), Funding/Prioritization/Phasing, and Corridor PEL Report. Six (6) status presentations will be conducted at the Technical Working Group to update the Agencies on the key milestones. The Consultant shall be responsible for preparing and keeping a record of meeting minutes. The Consultant should carefully anticipate the number of meetings that shall be necessary, as the cost of all meetings shall be included as part of the contract price. The Consultant shall prepare for and participate in these meetings, and shall provide documentation of the meetings such as presentation materials and meeting minutes.

The Consultant shall submit working and final drafts on all work products in a timely manner to allow for adequate review and revision prior to final submittal schedules. The Consultant invoices shall be prepared to show cost against major milestone tasks.



B. Consensus Building Process and Public Outreach

1. Key Stakeholder Interviews: Understanding ideas, perspectives and needs of the key stakeholders in the corridor is critical for broadly supported decisions. At the start of the project, 15 interviews will be conducted with key stakeholders (identified in Section 2) to understand their respective interests, goals, issues and desired outcomes for the SH 7 PEL. An interview template will be prepared prior to conducting interviews. An overall summary of interview issues and themes will be prepared after the interviews take place and results will inform both the public participation plan and the Visioning Workshop agenda.
2. Visioning Workshop: An interactive Visioning Workshop will be held with jurisdiction staff members (that will make up the Technical Working Group), elected officials, resource agency representatives and other key partners to define the vision, goals and objectives of the study. The Consultant will design and facilitate the Visioning Workshop that will lay the foundation for the study by identifying a collective corridor vision, key issues and concerns. A summary of the Visioning Workshop will be produced and the results will inform the Public Participation Work Plan.
3. The Agency Coordination and Public Outreach Plan shall at a minimum include:
 - Preliminary identification of critical issues and problems in need of resolution.
 - Recommend the proper level and means of involvement in the study by the public
 - Identification of Resource Agencies with an interest in the corridor and the level of consultation required with each agency for successful completion of the study.
 - Identification of community leaders, elected officials and key community groups and recommend level and means of involvement in the study by those identified.
 - Identification of planned community events in the corridor that are scheduled during the study.
 - Description of participation methods, objectives, and where each fits into the schedule.
 - Lists of stakeholders, elected officials, resource agencies and their respective contacts.
4. Technical Working Group (TWG) Coordination and Meetings: The TWG, composed of corridor communities' technical staff and resource agency representatives, will serve as the focal point for the stakeholder engagement process and is the primary mechanism to directly interact and engage the corridor communities and stakeholders. The project team will coordinate with the TWG to determine the proper level of involvement and engagement required for their respective elected officials and other associated stakeholder groups. There will be eight (8) facilitated TWG meetings that will be the forum for addressing corridor-wide issues and making recommendations as a group. Segment-specific issues can be addressed through consultations with the affected jurisdictions as needed. Meeting agendas, associated materials and summaries will be prepared for each meeting. Community coordination and follow up will occur for each meeting as needed. Operating guidelines and a TWG work plan will be established to define the group's goals and how it will function.
5. Resource Agency Scoping Meetings: An individual meeting will take place (three [3] total) to coordinate and consult with SHPO, USACE and USFWS.
6. Corridor-wide Public Meetings: Corridor-wide public meetings will be held at the beginning of the process to educate the public on the PEL process and to collect input about the vision for the corridor and concerns, and later to present the range of alternatives to the public and collect input for recommendations. There will be four (4) meetings total; two (2) meetings will be held at each phase in alternate locations along the corridor. Community coordination and communication efforts will be carried out in conjunction with the meetings. Public meetings will include corridor wide public notifications such as a post card mailing or other notice.



7. Elected Official Committee and City Council Briefings: Two (2) meetings with the TWG will also include elected officials that will serve as community representatives to the project. Our team will coordinate closely with the TWG to determine when there will be need to brief city councils and elected officials outside of TWG meetings. The project team will meet with these groups one-on-one when necessary and will estimate for eight (8) meetings.
8. Outreach to Regional Partners and Small Groups: Our team will coordinate closely with the TWG to develop effective strategies for involving their respective constituencies and other key stakeholders groups. Numerous approaches will be used to engage and interact with the broader community including utilizing existing communication channels, such as planned events or pre-existing meetings when necessary. Our team will estimate for eight (8) meetings.
9. On-going Outreach and Public Involvement Efforts: The consultant team will support CDOT staff by serving as a project point of contact for key stakeholders, agencies or the general public; to populate and manage the email/ mailing lists and the contact database; to create content for CDOT's project website; to support the creation and distribution of media advisories; and to advertise and communicate the public meetings.

TASK 1 WORK PRODUCT: Project Management Plan, contract budget and schedule, Quality Control Plan, monthly progress report, and payment and review milestones; Agency Coordination and Public Outreach Plan, meeting agendas, presentation materials, and meeting minutes.

All of the deliverables discussed in this task will be submitted to the CDOT Project Manager or appropriate stakeholders once (1) for review and revisions will be made, as appropriate. The Consultant does not assume a series of reviews by CDOT Region 6, CDOT Environmental Programs Branch (EPB), and FHWA.

NOTE:

For Tasks 2 and 3, the Agencies will assist the Consultant in the preparation of the different work products. For these tasks, the responsibilities of the Agencies and of the Consultant are defined.

TASK 2 - CORRIDOR CONDITIONS ASSESSMENT REPORT

The work product of this task is a Corridor Conditions Assessment Report. The report shall:

1. Collect and consolidate crash data and traffic counts (including truck traffic) to be used for the safety and operational analyses. Crash data will be provided from the CDOT database. Traffic data will be counted in the field or obtained from CDOT or the local municipalities.
2. Document the existing and planned transportation system in the corridor including highway through and auxiliary lanes, right-of-way and access; arterial lanes and access; transit types / service levels including station locations, routes and frequency, safety records and ridership and major concentrations of riders. The document shall also include bicycle and pedestrian facilities, planned and existing intermodal connection facilities and stations.
3. Document the travel markets that use the transportation system by using the 2035 DRCOG travel demand model (not field surveys) to establish:
 - Geographic locations of the origins and destinations
 - Trip purpose (Commuter/Non-commuter trips)
 - Local versus regional trips
 - Average Length of Trip
4. Summarize land use and modeling data as provided by the DRCOG travel demand model (Years 2010 and 2035).
5. Summarize traffic operations along the corridor for both the AM and PM peak hours.



6. Estimate future travel demands along the corridor with the 2035 DRCOG model. Future travel demands shall be compared to existing corridor capacity at select screen lines and inadequately served travel patterns shall be identified.
7. Summarize future traffic (2035) operations along the corridor for both the AM and PM peak hours.
8. Perform a sketch plan sensitivity analysis for future traffic operations (beyond 2035) based on anticipated growth in traffic. If the DRCOG Dynus-T model is available at this time, the Consultant will perform a comparative review for existing and future traffic operations between the DRCOG Dynus-T model and the DRCOG Transcad model.
9. Identify distinct segments of SH-7 which share distinguishing urban traits, adjacent land use characteristics and existing roadway conditions.
10. Identify adjacent and parallel transportation facilities which have an impact on the SH-7 Corridor.
11. Summarize current roadway features including present roadway categorization per State of Colorado State Highway Access Code, lane configurations, roadway and right-of-way widths and adjacent land ownership characteristics, building set-backs, utility and environmental concerns, those areas of the corridor that have been identified by past CDOT Safety Assessment Reports as having safety related issues, and those areas that have an existing Access Control Plan.
12. The typical existing cross section for each discrete segment of the corridor should also be illustrated in the report along with an assessment of the operational and safety adequacy of that cross-section based on both existing and future (2035) travel demands.
13. Conduct an Environmental Overview of the Corridor: The analysis for this environmental overview will build from and be consistent with the other environmental studies completed or nearing completion in the project area, including the North I-25 Final EIS and the North Metro Final EIS and Record of Decision (ROD). The study area for this analysis will extend approximately two (2) miles north of SH 7 with E-470 as the southern boundary. The Consultant will collect, summarize, and source relevant existing data along the corridor. While the vast majority of the environmental and transportation data has already been assembled by the Consultant as part of the North I-25 EIS, gaps in the data may exist due to the elapsed time since the original capture or because the North I-25 EIS focused on the north-south corridors of I-25, US 85, and the commuter rail.

The following environmental resources are considered “priority” resources and are expected to be required for the PEL Study. This list is not all-inclusive and is subject to change based on meetings with project stakeholders. Modifications to the list may be necessary depending on the results of the Visioning Workshop. FHU will conduct a “windshield survey” of the project study area and utilize existing data from previous studies conducted in the area. No additional environmental information will be collected.

- Land Use – The N I-25 Land Use Conditions and Impacts Technical Memorandum from the North I-25 Draft EIS will be utilized as the basis for this information. This information will be supplemented by information from the various local agencies.
- Floodways and 100-year floodplain boundaries – Flood Hazard Area Delineation (FHAD) for Big Dry Creek (which includes the crossings for Preble’s Creek, South Fork Preble’s Creek, Big Dry Creek, and Morris Creek), Todd Creek, and the South Platte River will be utilized. Additional FHAD’s will be utilized for the corridor as required.
- Parks and Recreational Resources – The N I-25 EIS Parks and Recreation section will be utilized as the basis for this information. This information will be supplemented by information from the various local agencies.
- Historic Resources - The N I-25 EIS Historic Preservation section and Historic Resources Survey Report from the North I-25 Draft EIS will be utilized as the basis for this information. This information



will be supplemented by information from the various county Assessor's offices on the age of the structures.

- Hazardous Substances – The N I-25 Modified Phase I Environmental Site Assessment Report from the North I-25 Draft EIS will be utilized as the basis for this information. This information will be supplemented by information from various resource agencies.
- Wetlands and Other Waters of the US – The N I-25 Wetlands and Other Waters Technical Memorandum will be from the North I-25 Draft EIS will be utilized as the basis for this information. This information will be supplemented by information from various resource agencies.
- Wildlife/Threatened and Endangered Species – The N I-25 Wildlife Technical Report from the North I-25 Draft EIS will be utilized as the basis for this information. This information will be supplemented by information from various resource agencies.

14. Reference the list of issues that resulted from contacts with stakeholders and general knowledge of the corridor to identify a list of key needs in the corridor.
15. Prepare a preliminary list of existing and anticipated deficiencies in the corridor. The list should describe the existing or anticipated deficiencies in the transportation system and the growth or changing needs in the corridor along with an estimate as to the timeframe in which deficiencies will occur.

Agency Responsibilities - The Agencies will provide the Consultant with existing local land use and transportation plans, traffic counts, roadway striping plans (illustrating lane/roadway/right-of-way widths), on-street parking inventory/utilization, digital photographs of different roadway segments, information on sidewalk and parkway features, and building set-back, when available. The Agencies will identify the different segments along SH-7 for detailed analysis and provide the Consultant with LOS and travel time information for these study segments, if available. The Agencies will assist the Consultant in obtaining any other data which may be necessary in completing the existing conditions report. The Agencies will appoint one individual as their designated liaison to CDOT and the Consultant in order to better facilitate communication. Information that is not available and can't be provided by local agencies will be collected by the Consultant.

Consultant Responsibilities - The Consultant shall prepare a Corridor Conditions Assessment Report which includes all elements as described above.

TASK 2 WORK PRODUCT: Corridor Conditions Assessment Report which presents the findings from the Responsibilities described above in a clear and concise manner. A summary of comments and key issues received at Public-Stakeholder meetings.

All of the deliverables discussed in this task will be submitted to CDOT twice (2) for review and revisions will be made, as appropriate. The Consultant assumes that FHWA, CDOT EPB, CDOT Region 6, and stakeholder review will happen concurrently.

TASK 3 - DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE CORRIDOR

Develop an Executive Summary containing the following:

1. Identify the visions CDOT and each jurisdiction have for the future of the corridor and points of disagreement and congruence.
2. Refer to data identified in the Corridor Conditions Assessment Report regarding existing and expected deficiencies in the transportation system serving the corridor area to compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.
3. Prepare a draft or general Mission Statement and key issues to be discussed at a stakeholder meeting and at public meetings.



4. Prepare visual displays summarizing data compiled to date. Include key factors of the corridor including the preliminary list of deficiencies already identified.
5. Produce a written statement of purpose and need. This statement should be an "umbrella" statement for the corridor, based in identification of needs and deficiencies. The statement should reflect the context sensitivity of the corridor's communities to help reach their transportation goals by encouraging the consideration of land use, transportation, environmental and infrastructure needs in an integrated manner. This statement will be reviewed and include the input of FHWA (Coordination Point #1).
6. Identify goals and visions for the corridor.

TASK 3 WORK PRODUCT: An executive summary which presents the findings from the task described above in a clear and concise manner. A summary of comments and key issues received at Public-Stakeholder meetings.

All of the deliverables discussed in this task will be submitted to CDOT twice (2) for review and revisions will be made, as appropriate. The Consultant assumes that FHWA, CDOT EPB, CDOT Region 6, and stakeholder review will happen concurrently.

TASK 4 - CORRIDOR PLANNING ENVIRONMENTAL LINKAGE (PEL) STUDY

A Corridor PEL Study shall be prepared with the following objectives.

1. Express a common vision between CDOT and the stakeholders as to the future operational functionality of the corridor both as a whole and as discrete segments.
2. Develop a set of alternatives which:
 - Meets the Purpose and Need identified in the previous task.
 - Balances regional mobility with local connectivity needs and access management.
 - Enhances corridor aesthetics, safety and urban design components and multi-modal objectives as previously identified within each discrete segment of SH-7
 - For highway expansion or other modal use of CDOT right-of-way, an analysis should be conducted to identify alternatives for the most appropriate use of the existing right-of-way. A determination then has to be made if this represents the maximum right-of-way capacity or if additional right-of-way should be acquired

Alternatives Development – The Consultant will complete basic engineering for the alternatives to be screened to establish a Proposed Action(s). This basic engineering will generally be to a conceptual level of design; however, more detail may be needed in some areas to support screening.

For the Proposed Action, a cross section study will be developed for the alternatives. This information shall be sufficient to determine general cut and fill limits, toe of slope locations, right-of-way needs and easement requirements, earthwork requirements, structural requirements, and water quality facilities. No additional survey will be performed. The Proposed Action will be developed using the 2-foot contours included in 2010 Denver Regional Aerial Photography Program (DRAPP), which will be provided by CDOT.

To identify potential water quality facilities, the Consultant will calculate the required volume based on the Proposed Action vertical alignment. This calculation will include an approximate acre-feet of volume that will establish the conceptual pond size around the roadway low points. Drainage flows will be utilized from the appropriate FHAD's and Outfall System Planning (OSP) as required. These flows will be utilized to evaluate the existing and proposed major drainage crossings as identified in the FHAD's and OSP's within the corridor. No Rational Method or Colorado Urban Hydrograph Procedure (CUHP) modeling will be completed as part of this task.



The conceptual design for the roadway alignments, roadway templates, lane additions, pedestrian facilities, bicycle facilities, transit facilities (priority treatments, designated stops and possible park and ride facility), and major structures (bridges, grade separations, retaining walls, etc.) included in the Proposed Action(s) will be completed to approximately five (5)% design so that planning-level cost estimates can be established by the Consultant.

Following screening, the Proposed Action will be documented and the conceptual design will be refined as needed to avoid impacts and/or provide mitigation.

Alternatives Screening - A two-step screening process through which the level of analysis detail becomes greater as the number of alternatives reduces will be utilized. Five basic measures should be used to judge alternatives. This evaluation is intended to illuminate the issues and provide a coherent discussion prior to selecting a preferred corridor strategy. This process will be reviewed and include the input of FHWA (Coordination Point #2).

- Operational Effectiveness – This analysis should quantify how each alternative addresses deficiencies and needs as identified in Tasks 2 and 3. For estimating purposes, it is anticipated that up to three (3) alternatives will be analyzed under the AM and PM peak hour to determine how well each alternative addresses the deficiencies and needs as identified in Tasks 2 and 3.
 - Land Use Consequences - This analysis should quantify how the alternatives will affect accessibility and mobility in the corridor. Resultant land use implications should then be assessed and compared to adopted comprehensive plans and zoning. Any inconsistencies between the proposed transportation investment and levels or types of development in local plans should be clearly identified and understood by all decision-makers. It should be noted that land use planning is not the purview of CDOT. Consequently, CDOT staff can only assist by providing information useful to those agencies with jurisdiction over land use and development policies, planning and decision-making.
 - Economic Feasibility – This analysis should compare the alternatives in terms of whether the benefits are commensurate with the costs. It also should consider the availability of funds for construction and operation as well as equity – the distribution of costs and benefits. The Consultant shall establish meaningful project phases and connect them with potential funding packages. Given the variability in the amount and timing of funding, the Consultant will identify and prioritize projects for a range of funding scenarios to ensure that the corridor is getting maximum benefit for the available dollar. As a part of this, the Consultant will investigate various state and federal funding mechanisms such as FASTER, surface treatment, enhancement, STP metro, etc., that can be used in part or combination to develop larger project packages. Other options such as BIDs, TIFs, and new federal programs such as livable communities, will also be reviewed for applicability on the corridor.
 - Environmental Feasibility - Impacts of each alternative on important environmental resources and feasibility regarding environmental issues and regulations. Conceptual avoidance and minimization measures should be developed following the identification of impacts and concerns.
 - Conformity with local comprehensive plan goals and policies from US 85 to US 287, as well as from US 287 to 75th Street.
3. Recommend and prioritize sections of the corridor for which a formal Access Control Plan should be implemented
 4. If the study identifies sections of the corridor which in the future will no longer have sufficient capacity, forecast the time period in which this is expected to occur.
 5. Provide an easy-to-read pictorial summary guide that helps evaluate the pros and cons of each alternative in a creative and meaningful way.



6. Present Alternatives to the Public through whatever means is agreed to in Task 1.
7. Recommend ROW needs along entire length of the corridor expressed as typical sections. The recommended ROW for the Proposed Action(s) will be identified (including physical environmental mitigation like stormwater controls. These elements will combine to allow for corridor preservation by the local communities.
8. Prepare a Corridor PEL Study that includes an Executive Summary and the following chapters: Purpose and Need Statement, Proposed Action(s), No-Action Alternative, Other Alternatives Considered and Alternative Screening, Affected Environment and Environmental Consequences, Agency Coordination and Public Involvement, and Next Steps. In addition to the Corridor PEL Study report, the following technical reports will be prepared:
 - Historic Resources Survey. A determination of potential eligibility for the National Register of Historic Places (NRHP) of properties affected by the Proposed Action(s) along the SH 7 corridor will be conducted.
 - Wetland Determination. A determination of wetlands and other waters of the US along the corridor will be conducted.
 - Modified Environmental Site Assessment Update. The project team will update the MESA conducted for the North I-25 EIS.
 - Wildlife and Threatened and Endangered Species. An assessment of wildlife movement, critical wildlife habitat, and threatened and endangered species and habitat will be conducted.
 - Noise Assessment. The noise assessment will consist of development of a flat model for a section of the corridor to determine noise contours. The goal of this analysis will be to identify sensitive noise receptors potentially impacted by the project.

Environmental resources without a Resource Agency review or acceptance component will not have a separate technical report prepared but will be discussed directly in the PEL Study report. The resources include: land use, properties to be acquired for right-of-way and displacements, parks and recreation (Section 4[f]), water resources, and cumulative impacts.

Consultant Responsibilities - The consultant shall coordinate with CDOT and the other jurisdictions prepare a Planning and Environmental Linkage Report which will describe the findings, alternatives and visions developed in Task 4. Included in the report will be responses to the FHWA PEL Questionnaire as included in Appendix B. The objective of the study will be to receive an acceptance letter from FHWA (Coordination Point #3).

TASK 4 WORK PRODUCT: Corridor PEL Study Report, which presents the findings from the Responsibilities described above in a clear and concise manner, Historic Resources Survey, Wetland Determination Technical Report, Modified Phase I Environmental Site Assessment, Wildlife/Threatened Endangered Species Technical Report, and Noise Assessment Technical Report. A summary of comments and key issues received as a result on the implementation of the Public Participation Work Plan as per Task 1.

TECHNICAL AND PEER REVIEW

All study reports and design work products will be reviewed by the Agencies

PROJECT SCHEDULE

The contract period shall be eighteen (18) months from the date of execution of the contract.

CONTRACT COMPLETION

This Contract will be satisfied upon acceptance of the following items if applicable:

- A. Project Schedule



- B. All work products as described above
- C. Project Progress Meeting Minutes
- D. All documents found In Research
- E. All Permission to Enter forms
- F. Photography Products
- G. Ownership Map
- H. Original Field Notes
- I. Completion of review of contract submittals



APPENDIX C
EXAMPLE FHWA AND CDOT ACCEPTANCE LETTERS

STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Region 6
Planning & Environmental
2000 S. Holly Street
Denver CO 80222
303-757-9372; FAX: 303-757-9907



Ms. Karen Good, AICP
Development & Planning Supervisor
Public Works – Policy and Planning
City and County of Denver
201 West Colfax Avenue, Department 509
Denver, CO 80202

October 23, 2009

Re: *Federal Boulevard (5th Avenue to Howard Place) Planning Environmental Linkage Study*

Dear Ms. Good:

This letter is in response to your request for Colorado Department of Transportation (CDOT) acceptance of the Planning and Environmental Linkages (PEL) study for Federal Boulevard (5th Avenue to Howard Place) undertaken by the City and County of Denver (CCD), the Federal Highway Administration (FHWA) and CDOT. We have appreciated the opportunity to participate in this process as a member of the project team, and commend the efforts of everyone involved to conduct this planning study in a manner consistent with the FHWA PEL guidance which outlines a process similar to that required by NEPA. It is our belief that this streamlining effort will result in time and cost savings on future NEPA studies conducted within the study limits.

The PEL Questionnaire (October 2009) provides a good summary of the work completed in PEL study and the information that will be needed once individual projects are identified and enter into the NEPA process. As funding becomes available for individual projects, it will be necessary for CDOT to meet with CCD and FHWA to initiate and proceed through the NEPA process. We look forward to participating in that effort and continuing to work with CCD and FHWA to realize the transportation goals in this corridor.

If you have any questions regarding this letter, please feel free to contact Jon Chesser at (303) 757-9936 or jonathon.chesser@dot.state.co.us. Thank you.

Sincerely,

Jim Paulmeno
CDOT - Region 6
Regional Planning and Environmental Manager

Katie Dawson
CDOT - Region 6
Central Engineering Program

Cc: Stephanie Gibson, FHWA
Jon Chesser, CDOT
Kevin Maddoux, Felsburg Holt & Ullevig



U.S. Department
of Transportation

**Federal Highway
Administration**

Colorado Division

February 3, 2010

12300 W. Dakota Avenue, Suite 180
Lakewood, CO 80228
720-963-3000
FAX 720-963-3001

Ms. Karen Good, AICP
Development & Planning Supervisor
Public Works – Policy and Planning
City and County of Denver
201 West Colfax Avenue, Department 509
Denver, Colorado 80202

SUBJECT: Federal Boulevard (5th Avenue to Howard Place) Planning Environmental
Linkage Study

Dear Ms. Good:

This letter is to acknowledge the completion of the Planning and Environmental Linkages (PEL) study initiative undertaken by City and county of Denver (CCD), the Colorado Department of Transportation (CDOT), and the Federal Highway Administration (FHWA). We appreciate and commend the efforts the team has undertaken to conduct this corridor planning study in a manner consistent with the FHWA PEL guidance which outlines a process similar to that required by the National Environmental Policy Act (NEPA). The benefits of this streamlining effort will undoubtedly be realized in terms of time and cost savings on future NEPA studies conducted within the corridor planning study limits.

The completed PEL Questionnaire submitted to FHWA in October 2009 provides a good summary of the work completed in the PEL study and the information that will be needed once projects enter into the NEPA process. Some of the strengths of the corridor study include meaningful public involvement throughout the process, detailed analysis of environmental resources, and coordination with other nearby projects. In particular, FHWA appreciates the minor changes made to the adjacent projects to accommodate likely impacts from the improvements proposed in the PEL. As individual projects are initiated and funding becomes available, it will be necessary for FHWA to meet with CCD and CDOT on a project-by-project basis to determine the scope of the NEPA study including level of study required, purpose and need, logical termini, and the extent to which the corridor study can be used to supplement or replace certain milestones in the NEPA process.



If you have any questions, please feel free to contact Ms. Stephanie Gibson, Environmental Program Manager for the Division Office, at (720) 963-3013. Ms. Gibson may also be contacted by e-mail at Stephanie.gibson@dot.gov.

Sincerely yours,

A handwritten signature in blue ink that reads "Stephanie Gibson". The signature is written in a cursive style.

For Karla S. Petty, P.E.
Division Administrator

cc: Jim Paulmeno, CDOT Region 6
Jon Chesser, CDOT Region 6
Dahir Egal, FHWA Operations Engineer



U.S. Department
of Transportation
**Federal Highway
Administration**

Colorado Division

June 19, 2012

12300 W. Dakota Ave., Ste. 180
Lakewood, Colorado 80228
720-963-3000
720-963-3001

Mr. Tom Wrona
Regional 2 Transportation Director
Colorado Department of Transportation
905 Erie Avenue
Pueblo, Colorado 81003

**Subject: US 50 West (Swallows Road to Baltimore Avenue) Planning Environmental
Linkage Study**

Dear Mr. Wrona:

This letter is to acknowledge the completion of the Planning and Environmental Linkages (PEL) study initiative undertaken by the Colorado Department of Transportation (CDOT). This corridor planning study was undertaken in a manner consistent with the Federal Highway Administration (FHWA) PEL guidance which outlines a process similar to that required by the National Environmental Policy Act (NEPA). The benefits of this streamlining effort will undoubtedly be realized in terms of time and cost savings on future NEPA studies conducted within the corridor planning study limits.

The completed PEL Questionnaire submitted to FHWA in June 2012 provides a good summary of the work completed in the PEL study and the information that will be needed once projects enter into the NEPA process. As individual projects are initiated and funding becomes available, it will be necessary to FHWA to meet with CDOT on a project-by-project basis to determine the scope of the NEPA study including level of study required, purpose and need, logical termini, and the extent to which the corridor study can be used to supplement or replace certain milestones in the NEPA process.

If you have any question, please feel free to contact Mr. Chris Horn of this office at 720-963-3017.

Sincerely,

^{KWC} John M. Cater
Division Administrator

Cc: Ms. Lisa Streisfeld, CDOT Region 6
Mr. Joe Garcia, CDOT Region 6



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