

Planning



Environmental Linkages

Planning and
Environmental Linkages
(PEL) Handbook - Version 2



COLORADO

Department of
Transportation

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List of Acronyms

	- A -
ADA	Americans with Disabilities Act
	- C -
CatEx	Categorical Exclusion
CDOH	Colorado Department of Highways
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
FTA	Federal Transit Administration
	- G -
GIS	geographic information systems
	- I -
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
	- L -
LOS	level of service
LOSS	level of service of safety
	- M -
MAP-21	Moving Ahead for Progress in the 21 st Century Act
MPO	Metropolitan Planning Organization
	- N -
NEPA	National Environmental Policy Act of 1969
	- P -
PEL	Planning and Environmental Linkages
PIN	Planning Insight Network
ProLo	Project Locator
	- R -
ROW	right-of-way
RPEM	Region Planning and Environmental Manager
RTP	Regional Transportation Plan



CDOT PEL Handbook

- S -

SAFETEA-LU	Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users
SHPO	State Historic Preservation Officer
STIP	Statewide Transportation Improvement Program
SWP	Statewide Transportation Plan

- T -

TEA-21	Transportation Equity Act of the 21st Century
TERC	Transportation Environmental Resource Council
TIP	Transportation Improvement Program
TPR	Transportation Planning Region

- U -

USC	United States Code
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CDOT PEL Handbook January 2016 Update

The Colorado Department of Transportation (CDOT) first published its Planning and Environmental Linkages (PEL) Handbook in December 2012 to provide guidance and recommend best practices for developing PEL studies for transportation projects in Colorado. Since the current Handbook was completed, CDOT has conducted or been involved with several additional PEL studies and has gained a significant amount of experience on a variety of projects. This update also adds additional information on the Moving Ahead for Progress in the 21st Century Act (Map-21) (Public Law 112-141) language and requirements that pertain to the PEL process and provides new content related to using PEL in long-range planning and taking PEL results into the National Environmental Policy Act process. The following table summarizes some of the more considerable changes made during this revision.

Chapter	Description of Updates
Table of Contents/ General	Reorganization of the Handbook content to reduce duplication and improve readability.
Chapter 1	Moves Sections 2.2, 2.4, and 2.5 to Chapter 1 and adds new Section 1.3, Reasons Not to Conduct a PEL Study.
Chapter 2	Moves Section 1.3, Additional Resources, to Chapter 2 and adds MAP-21 requirements.
Chapter 3	New content related to the PEL Process and Long-Range Planning.
Chapter 4	Formerly Chapter 3. Provides new Sections 4.1 Determine the Reason for the PEL Study and 4.3.2 Federal Highway Administration and CDOT Involvement in Local Agency Studies. Moves old Sections 4.1, 5.1, and 5.2 to Chapter 4.
Chapter 5	Formerly Chapter 4.
Chapter 6	New content, Transitioning from PEL Study to NEPA.
Chapter 7	Updates best practices and lessons learned from interviews with project staff.

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1.0 Introduction to the PEL Process



Items in leaf call-out boxes are websites, regulatory citations, guidance documents, and other references that can be researched by the reader for additional information.



Items in columbine call-out boxes include tips, tools, quotes, and other items that have been highlighted for the reader.



PEL is a study process used to identify transportation issues, priorities, and environmental concerns. It can be applied to make planning decisions and be used for planning analysis. These decisions and analyses, for example, can be used to identify and prioritize future projects, develop the purpose and need for a project, determine project size or length, and/or develop and refine a range of alternatives.



PEL studies should be able to link planning to environmental issues and result in useful information that carries forward into the NEPA process. The adoption and use of a PEL study in the NEPA process is subject to a determination by the FHWA.

The Colorado Department of Transportation (CDOT) developed this Planning and Environmental Linkages (PEL) Handbook (Handbook) in coordination with the Federal Highway Administration (FHWA) to provide guidance on the PEL process in Colorado. The PEL process represents an approach to transportation decision making that considers environmental, community, and economic goals early in the planning stage and carries them through project development, design, and construction. A PEL study can lead to a seamless decision-making process that accomplishes the following:

- Minimizes duplication of effort
- Promotes efficient and cost-effective solutions and environmental stewardship
- Reduces delays in project implementation

This Handbook provides CDOT staff—and local governments and regional planning agencies—guidance on developing and carrying out PEL studies for transportation programs or projects in Colorado. It provides recommendations and best practices but is not regulatory or mandatory. It is assumed the professionals using this Handbook will have experience in the field of transportation planning and the National Environmental Policy Act (NEPA) process. Guidance related to federal requirements for transportation planning and NEPA are referenced but not detailed here, nor does anything in this Handbook supersede CDOT or FHWA regulations or guidance on planning or NEPA.

This Handbook and the practices outlined within are updated as needed to capture changes in guidance and processes based on PEL study experiences. CDOT's PEL website contains up-to-date information about the PEL process and the current version of the Handbook. CDOT's PEL website is available at: <http://www.coloradodot.info/programs/environmental/planning-env-link-program>. In addition, CDOT has a classroom training course available for the PEL process that can be arranged through CDOT's PEL Program Manager at the Environmental Programs Branch of CDOT Headquarters.

1.1 What is the PEL Process?

PEL is a study process used to identify transportation issues, priorities, and environmental concerns. It can be applied to make planning decisions and be used for planning analysis. The primary objective of the PEL process is to assess transportation needs and priorities. Assessment can be on a program level, such as evaluating transportation funding options, or at a project level. Project-level PEL studies, which have been the majority of PELs completed, can range from large corridor studies to more localized studies, such as an intersection improvement. In all types of PELs, the goal is to gather enough detail so that the information developed can be utilized in future planning or NEPA.



The PEL process is flexible and can be used to make project or planning decisions. Project decisions might include developing the purpose and need, recommending one or more refined alternatives to be evaluated in future NEPA processes, identifying stakeholders and issues of potential concern, prioritizing future projects, or developing key components for future analysis. Planning decisions may include determining what financial measures are needed (such as tolling) or what type of improvement, including modes, might meet transportation needs.

The PEL process is often conducted before NEPA, before project construction funding is identified, and before problems are known or solutions have been considered.

Before a PEL study is conducted, a pre-scoping process determines the reason for and expected outcomes of a PEL study, including why the study is being conducted and what question(s) will be addressed. If a program or project is likely to have federal involvement in the future, a PEL is a good tool to help streamline future NEPA processes. Completing a PEL, however, does not guarantee federal funding.

A variety of outcomes can result from the PEL process: a specific project may be identified to advance into project development and NEPA; a set of improvements could be identified with recommendations for priorities to address transportation needs over a longer term; or the process might suggest that no immediate projects should be advanced because the needs do not warrant immediate action, or the controversy, costs, or environmental impacts associated with the project(s) are too high. PEL studies can be and are often used as a tool to prioritize improvements. For example, a PEL study for a corridor could result in the identification of multiple potential projects (such as capacity improvements for a shorter length of the corridor and intersection improvements) that can be prioritized for implementation. PEL studies conducted for projects provide context for future NEPA decisions, such as creating a basic description of the environmental setting, deciding on methodologies for analysis, and identifying programmatic level mitigation for potential impacts most effectively addressed at a regional or state level. The PEL process can also recommend the class of NEPA process required for future projects and can support the use of NEPA streamlining tools, such as CDOT's Environmental Assessment (EA) Template.

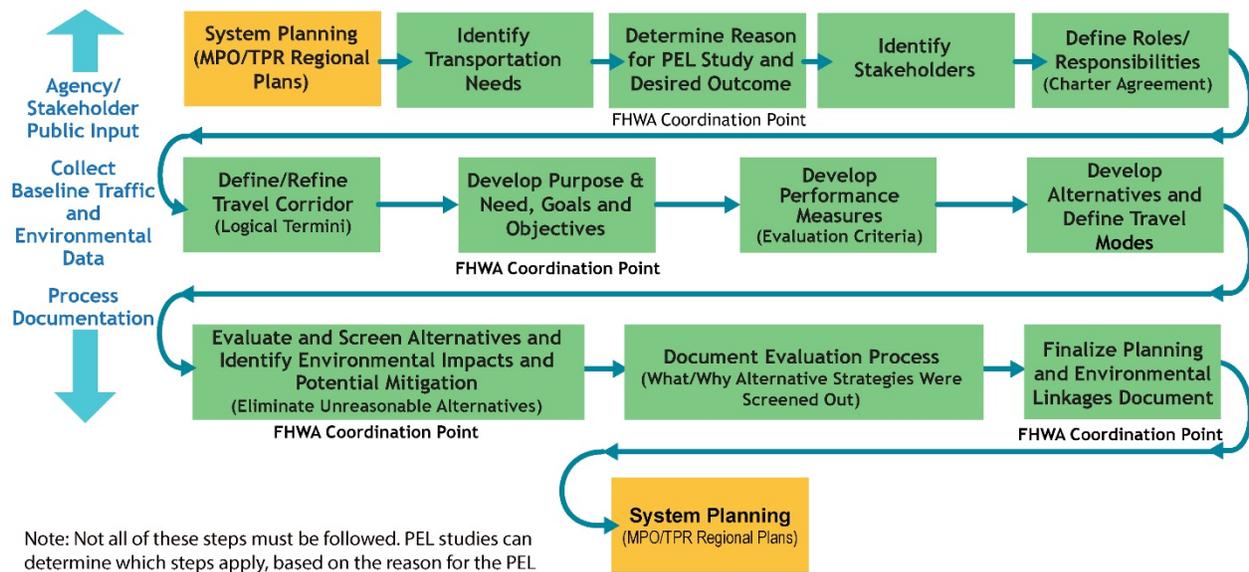
PEL studies provide transportation and environmental context and can be used to make *planning decisions*, such as program or project financing, including tolling options, or modal decisions about what modes might meet transportation needs. A PEL study can also be used for *planning analyses*, such as travel demands, regional development and growth, local land use analysis, population and employment analysis, documenting natural and built environmental conditions, and identifying resources of concern and potential cumulative effects. Planning decisions and planning analyses can help set the stage for future projects by contributing to the understanding of needs, logical termini, and/or improvement alternatives.

Although PEL studies address some aspects of NEPA, the PEL study should cost less and take less time than a NEPA process. It is not intended as a substitute for the NEPA process but as a way to streamline the NEPA process and focus project development. Identifying priorities through the PEL process helps coordinate planning efforts across jurisdictions and provides a useful tool to identify political needs and desires and give a context of an area without intensive studies often required for the NEPA process.

Figure 1-1 displays all of the potential steps in the full PEL process. Not all steps in the flowchart must be conducted for each PEL study. The reason for and desired outcome of the study will determine the steps to follow. Four FHWA Coordination Points are required during the study: reason for the study and desired outcomes; purpose and need, goals, and objectives; alternatives screening; and documentation. PEL studies led by local agencies, rather than CDOT, will involve CDOT at these same concurrence points, and CDOT will determine when FHWA involvement is needed.



Figure 1-1 Planning and Environmental Linkages Process Flow Chart



The adoption and use of a PEL study in the NEPA process is subject to a determination by FHWA, with the input of other participating agencies, that 10 conditions have been met. These 10 conditions are outlined in 23 United States Code (USC) 168(d) and are listed in **Section 2.3** of this Handbook. One important condition to consider when determining whether to conduct a PEL study is whether a project will advance into NEPA within 5 years of the study’s end. Additional information on preparing for a NEPA process after a PEL study is presented in **Chapter 6** of this Handbook.

1.2 Benefits of Conducting a PEL Study

Conducting a PEL study provides multiple benefits to CDOT, FHWA, local agencies, resource agencies, and other project stakeholders. PEL studies can help inform planning decisions, streamline NEPA, and be a platform for stakeholders to discuss and prioritize transportation issues and project implementation. Depending on the contents and objectives of the PEL study, benefits may include the following:

- Building on decisions and information developed during the planning process in NEPA
- 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 affected jurisdictions and transportation agencies at early stages and throughout the planning process
- Building collaborative working relationships with resource agencies and the public by enhancing participation and coordination efforts
- Conducting ongoing coordinated involvement of FHWA, CDOT, resource agencies, and local agencies
- Increasing consideration of qualitative and quantitative environmental impacts early in the transportation planning process to help projects selected for funding proceed more quickly through NEPA during the project development phase
- Identifying key environmental resources (i.e., resources that could require avoidance or minimization of impacts during alternatives development; or resources with lengthy environmental clearance processes that 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 (Categorical Exclusion [CatEx], Environmental Assessment (EA), Environmental Impact Statement [EIS]) prior to project development
- Developing a clear project description and purpose and need statement
- Preparing preliminary cost estimates of alternatives for NEPA studies and identification of funding
- Developing Programmatic Agreements with resource agencies, as applicable by early analysis of environmental resources
- Identifying logical termini and project sections with independent utility, and recommending a project phasing and action plan

1.3 Reasons Not to Conduct a PEL Study

Sometimes projects or corridors are not well suited to a PEL study because of timing, funding, or other considerations. PEL studies can be expensive and may not be useful if projects are too far into the future.

For example, PEL studies should not be conducted when:

- The lead agency is unsure of the reason for the study
- Solutions have already been identified (in this case, the project should start the NEPA process if funding is available)
- The project has construction funding (in this case, the project should start the NEPA process)
- Other types of studies will provide the information needed, such as access plans, a traffic study, or an existing conditions overview

Additionally, if it will be more than 5 years between the end of the PEL study and the start of the NEPA process, the recommendations of the PEL may need to be revisited. A PEL study does not reduce the level of analysis required for decision making under NEPA. PEL studies should not be conducted with the intent of minimizing or short-cutting NEPA requirements or of “downgrading” a NEPA class of action from an EA to a CatEx, for instance. Although the PEL process is a federally recognized process for streamlining NEPA, the completion of a PEL study does not guarantee federal funding for a project, and PEL studies should not be conducted for the primary purpose of obtaining federal funding.



PEL studies should not be conducted for the primary purpose of obtaining federal funding.



1.4 Relationship Between Planning Studies and NEPA in Project Development



“...the planning process and the environmental assessment required during project development by NEPA should work in tandem, with the results of the transportation planning process feeding into the NEPA process”

(FHWA and FTA, 2005a)

Although PEL studies are often conducted to facilitate future NEPA processes and future NEPA processes can only incorporate PEL study recommendations if proper steps and coordination occur, key differences exist between the PEL process and the NEPA process, particularly regarding alternatives and environmental evaluations. For instance, as discussed in **Section 4.5.3** of this Handbook, a PEL study that evaluates alternatives should focus on identifying feasible solutions as well as concepts that would not work, and provide ample information about the concepts for use in a future NEPA alternatives analysis process. The NEPA process, however, determines the final eliminated and preferred alternatives. Additionally, PEL study environmental evaluations do not need to address all regulatory requirements that should be addressed in a NEPA study. Instead, the PEL study should provide context on environmental constraints but rarely will include detailed environmental studies.

Early resource agency and stakeholder scoping combined with a focused public outreach program are important PEL process steps that directly tie to and help to focus future NEPA processes (**Section 4.4** of this Handbook). Early scoping should be conducted with resource agencies and stakeholders to ensure relevant topics are addressed in the PEL study. This coordination during the PEL process focuses the NEPA effort substantially by providing context to issues of concern and avoiding unnecessary effort analyzing less important issues.

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2.0 PEL Process Guidance and Resources

Use of the PEL process is not a legal requirement for project development. However, if PEL study results are to be adopted in the NEPA process, the PEL study must adhere to legal requirements and published guidance.

2.1 Legal and Regulatory Background

Both transportation planning and NEPA documentation have been required for transportation projects since the passage of the Federal Highway Act of 1962 and the National Environmental Policy Act of 1969 (signed on January 1, 1970). The transportation planning process is required by 23 USC 134-135 and 49 USC 5303-5306. These sections set out the process for developing long-range transportation plans to address future transportation needs. In the transportation context, NEPA attempts to ensure environmentally sound transportation infrastructure investments by addressing the social, economic, and environmental impacts of the project location and design. The process also requires public and agency coordination and involvement.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), enacted by Congress, required states to produce a Statewide Transportation Plan (SWP) and a Statewide Transportation Improvement Program (STIP). In 1998, ISTEA was replaced by the Transportation Equity Act of the 21st Century (TEA-21), and in 2005, TEA-21 was replaced by the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU strengthened the link between NEPA and transportation planning by emphasizing the need to include environmental considerations in the planning process. Section 6001 of SAFETEA-LU required certain elements and activities in the development of long-range transportation plans, including agency consultation, discussion of potential environmental mitigation activities, and stakeholder involvement.

In 2012, SAFETEA-LU was replaced by MAP-21, which emphasizes program consolidation, performance management, innovative financing mechanisms, and a responsible streamlining of the environmental review process. MAP-21 includes several provisions to link transportation planning and the NEPA processes, which are codified in 23 USC 168 regarding the integration of planning and environmental review. Under MAP-21, federal agencies may adopt planning-level analysis and/or decisions in the NEPA process, and FHWA is required to establish measures through a rule-making process to assess performance in multiple areas. FHWA issued a Notice of Proposed Rule Making regarding PEL on September 10, 2014; the rules have not yet been finalized (*Federal Register*, September 10, 2014).



Statewide Transportation Planning in the 20th Century

1909: Colorado's first highway bill was passed by forming a three-member Highway Commission to approve work and allocate funds. The Commission members first took their posts on January 1, 1910.

1917: The State Highway Fund was created and a State Highway Department was formed.

1947: The first National System of Interstate and Defense Highways was approved by the Federal Works Administrator. In Colorado, approved routes included I-25 from the Wyoming border to Raton Pass and I-70 from Denver to the Kansas border.

1953: The state legislature passed a new law reorganizing the Highway Department and renaming it the Colorado Department of Highways (CDOH).

1956: Congress passed the Federal Interstate Highways Act.

1991: CDOH became the Colorado Department of Transportation (CDOT).



Federal transportation planning law, including amendments made by the latest authorization, is codified in 23 USC 134, 23 USC 135, and 23 USC 168 with additional regulations outlined in the Code of Federal Regulations (CFR), primarily 23 CFR 450, 23 CFR 500, and 49 CFR 613.

2.2 The PEL Process and Every Day Counts Initiative

Every Day Counts is an initiative introduced by FHWA in 2009 to identify and deploy innovations that shorten project delivery, enhance the safety of roadways, and protect the environment. PEL is an Every Day Counts initiative that encourages the use of information developed in planning to inform the NEPA process. To be used in NEPA, a PEL study must involve interested state, local, tribal, and federal agencies, as well as the public. Decisions are to be documented in an identifiable format (such as the PEL Questionnaire) and made available for review during the NEPA scoping process. PEL documentation can be appended to or referenced in the NEPA document. The legal authority to use planning information in the NEPA process was explicitly clarified in SAFETEA-LU, including flexibility in agency funding choices, and has been subsequently included in current law.

To aid agencies in incorporating PEL principles into their planning and environmental review processes, FHWA introduced the PEL Questionnaire (developed the FHWA Colorado Division and discussed in **Section 2.5** of this Handbook) to ensure that planning information and decisions are properly documented for use in the NEPA review process. Currently, 14 states are using the PEL Questionnaire or equivalent approaches (FHWA, 2012).

2.3 Legal Requirements

Although the use of the PEL process is voluntary, the adoption of planning products in NEPA is subject to legal requirements set forth by MAP-21 and codified in 23 USC 168. The adoption of planning products¹, including PEL studies, for future use in NEPA proceedings may only occur when the lead federal agency determines the study met the following ten conditions set forth in 23 USC 168(d) (paraphrased here, and also listed in MAP-21 Section 1310):

1. The study was conducted in accordance with federal law.
2. The study was developed in consultation with federal and state resource agencies and Indian tribes.
3. The study included multidisciplinary consideration or systems-level or corridor wide needs and effects.
4. During planning process, notice was provided and public participation took place.
5. After initiation of environmental review process but prior to determining whether to use planning products the lead agency must have made documentation available to stakeholders and considered any comments.
6. There is no significant new information or circumstance that has reasonable likelihood of affecting the continued validity of product.
7. The study has a rational basis and is based on reliable and reasonably current data and scientific methodologies.
8. The study is documented in sufficient detail to support the decision or results of the analysis and to meet requirements for use in the environmental process.

¹ A planning product is defined in 23 USC 168 (a)(2) as “a detailed and timely decision, analysis, study, or other documented information that (a) is the result of an evaluation or decision-making process carried out during transportation planning, including a detailed corridor plan or a transportation plan developed under section 134 that fully analyzes impacts on mobility, adjacent communities, and the environment; (b) is intended to be carried into the transportation project development process; and (c) has been approved by the State, all local and tribal governments where the project is located, and by any relevant metropolitan planning organization.



9. The study is appropriate for adoption and use in the environmental review process.
10. The study was approved not later than 5 years prior to date on which information is adopted in the NEPA review.

2.4 FHWA and FTA PEL Guidance

The FHWA and Federal Transit Administration (FTA) issued *Memorandum Regarding Integration of Planning and NEPA Processes* (FHWA and FTA, 2005a)² on how transportation planning level information and products may be used to focus documentation 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. Agency coordination and environmental review should be conducted during the planning process, and work products from the planning process must be documented and available for public review. Both federal transportation law 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 supplement the information developed during the planning process.

The memorandum also offers guidance on analyzing alternatives and using planning recommendations in an EIS. Any remaining alternatives that are "reasonable after the planning level analysis must be addressed in the NEPA [EIS] process, even when they are clearly not the preferred alternative. Alternatives passed over during the transportation planning process because they are infeasible or because they do not meet the NEPA purpose and need can be omitted from the detailed analysis of alternatives in the NEPA analyses and documentation, so long as the rationale for omitting them is documented in the NEPA [EIS] document."

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



Guidance Document Links

Memorandum Regarding Integration of Planning and NEPA Processes (FHWA and FTA, 2005a):
http://environment.transportation.org/pdf/programs/1-Legal_Memo_re_Planning-NEPA_Linkage-Final.pdf

Guidance on Using Corridor and Subarea Planning to Inform NEPA (FHWA, 2011a):
http://www.environment.fhwa.dot.gov/integ/corridor_nepa_guidance.pdf

FHWA Environmental Review Toolkit PEL web page:
<http://www.environment.fhwa.dot.gov/integ/index.asp>

FHWA EDC Shortening Project Delivery Toolkit PEL web page:
<http://www.environment.fhwa.dot.gov/integ/edc.asp>

CDOT Programs - Planning and Environmental Linkages:
<https://www.codot.gov/programs/environmental/planning-env-link-program>

² A second piece of guidance, *Program Guidance on Linking the Transportation Planning and NEPA Processes* (FHWA and FTA, 2005b), has been superseded by current law and is not discussed in this Handbook.



2.5 FHWA PEL Questionnaire



The FHWA PEL Questionnaire can be found at:
http://www.environment.fhwa.dot.gov/integ/pel_quest.asp

The FHWA PEL Questionnaire, titled *FHWA Planning and Environmental Linkages Questionnaire*, was developed by CDOT and the FHWA Colorado Division and is consistent with 23 CFR 450 and FHWA policies pertaining to corridor studies (FHWA, 2011b). The FHWA PEL Questionnaire serves as a guide for conducting a PEL study and provides questions and issues to consider related to the different planning elements that may be addressed in a particular study. The FHWA PEL 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. PEL studies are not required to address all of these topics, and only the relevant portions of the FHWA PEL Questionnaire should be used. The FHWA PEL Questionnaire is intended to guide the PEL process and provide documentation with the submittal of the planning study. Documentation requirements are discussed further in **Chapter 5** of this Handbook and a copy of the FHWA PEL Questionnaire is included in **Appendix A** of this Handbook.

2.6 Additional Resources

Other CDOT resources for the PEL process include a PEL training course, the CDOT Environmental Resources Scoping Form, the *CDOT NEPA Manual* (CDOT, 2014), and the *CDOT Project Development Manual* (CDOT, 2013).

PEL Training Course

A 1-day training course has been developed for CDOT staff, which provides the following information:

- Overview and history of the PEL process
- Examples of different types of PEL studies
- How to determine whether a project should be a PEL study or some other type of study
- The steps involved in conducting a PEL study, including stakeholder involvement
- Documentation requirements for a PEL study
- How to transition a PEL study into NEPA
- PEL study best practices in Colorado

This training course is provided in person and is not available online. To schedule a training course for CDOT staff, contact the PEL Program Manager, whose contact information is provided on CDOT's Environmental Programs Branch staff contacts webpage (<https://www.codot.gov/programs/environmental/environmental-contacts.html>). This training is not currently offered for other agencies but may be expanded in the future if demand warrants.



The CDOT Scoping Form is available at:
<http://www.coloradodot.info/programs/environmental/resources/forms/Agency%20Scoping%20Environmental%20Form.docx/view>

The *CDOT Project Development Manual* is available at:
http://www.coloradodot.info/business/designsupport/bulletins_manuals/project-development-manual/2013-project-development-manual

The *CDOT NEPA Manual* is available at:
<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>

CDOT Scoping Form

The CDOT Scoping Form is used during the scoping phase of NEPA studies. It provides a list of environmental resources that may be analyzed during a NEPA study and prompts for considerations such as who will be the lead team member and what level of analysis and documentation will be required for each resource. Although the form does not need to be completed for PEL studies, it provides a comprehensive list of resources and can be used when developing the scope of work for a PEL study to determine resources to analyze and at what level of detail.

CDOT Project Development Manual and CDOT NEPA Manual

The *CDOT Project Development Manual* (CDOT, 2013) provides guidance on activities and processes needed to develop a project from conception to award. The *CDOT NEPA Manual* (CDOT, 2014) provides guidance on the activities, processes, and regulations to be followed during the NEPA phase of a project. These manuals may be helpful in understanding how the PEL study fits into the overall development of a project and what future NEPA requirements may entail for resources pertinent to a particular PEL study. The *CDOT NEPA Manual* summarizes the PEL process in the context of planning and project development and sets forth public involvement requirements for NEPA processes that are generally followed for CDOT PEL studies as well.

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3.0 Long-Range Transportation Planning and the PEL Process



Transportation Planning Products Defined

The **Statewide Transportation Plan (SWP)** is Colorado's long-range transportation plan. The SWP, prepared by CDOT's Division of Transportation Development, identifies future needs for Colorado's transportation system, establishes a transportation vision for the state, and outlines the strategic direction necessary to achieve these goals. It is a 25-year multimodal plan that outlines the state's transportation needs from both a fiscally constrained and unconstrained perspective.

The **Statewide Transportation Improvement Program (STIP)** is a planning document that identifies the transportation projects CDOT intends to fund over a rolling 4-year period. It must be consistent with corridor visions outlined in the long-range regional and statewide plans.

A **Transportation Improvement Program (TIP)** is a short-term capital improvement program developed by MPOs. CDOT incorporates TIP priorities in the SWP.

3.1 Introduction

This chapter provides an overview of the Colorado Transportation Planning process, describe the ways in which elements of the PEL concept can be incorporated into long-range transportation planning activities, and consider how long-range transportation planning can guide and inform PEL studies. Recommendations for strengthening the connections between long-range transportation planning and the overall PEL process also are included.

3.2 The Framework for the Transportation Planning Process in Colorado

In accordance with federal transportation law (discussed in **Chapter 2** of this Handbook), CDOT carries out a continuing, cooperative, and comprehensive statewide multimodal transportation planning process with its 15 Transportation Planning Regions (TPRs). Of these, ten are non-urban TPRs, and the five TPRs located in urban areas are governed by Metropolitan Planning Organizations (MPOs). Each TPR comprises the municipalities and counties within its established boundaries.

The planning process includes the development of long-range multimodal Regional Transportation Plans (RTPs) by each TPR. RTPs developed by the TPRs are integrated by CDOT into the SWP. The SWP combines the individual elements of the TPRs into a statewide vision that links transportation goals and strategies to investment decisions. The RTPs and SWP include both fiscally constrained and unconstrained vision components and identify the needs, corridor strategies, and/or projects anticipated to be constructed over the next 20-plus years. The fiscally constrained vision identifies the highest-priority projects that can be accommodated with future expected revenues. Projects included in the fiscally constrained plan provide the greatest transportation benefit to the state and the most benefit toward implementing the overall transportation vision. These priority projects are mostly likely to be funded and constructed and will likely require accompanying NEPA studies.

CDOT also develops a STIP that identifies the state's short-term project needs and priorities over a rolling 4-year period. In addition, under federal law, all MPOs are required to develop a short-term capital improvement program, or 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 4 years and they will always have a 4-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 SWP.

Information gathered during the long-range transportation planning process can inform the NEPA process. The PEL concept facilitates



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

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

To learn more about the recently adopted 2040 Statewide and Regional Transportation Plans, and other transportation planning-related topics, visit CDOT's Statewide/Regional Planning website at:

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



CPLAN – CDOT's Web-based mapping and information system

<http://coloradotransportationmatters.com/progress-made/c-plan/>

Project Locator (ProLo)

<https://www.codot.gov/business/budget/stip-old/current-stip-reports/information/project-locator.html>

and strengthens this process. CDOT has recently incorporated information useful to PEL and NEPA studies into the long-range planning process. Each of the 15 TPRs include corridor visions in their RTPs that integrate community values, land use decisions, and environmental concerns with transportation needs. Approximately 350 corridor visions have been developed and updated by the TPRs to identify current trends and conditions. Corridor visions can help guide the development of a corridor-specific PEL study by aligning vision strategies with corridor needs and priorities.

3.3 Integration of the PEL Concept in the Long-Range Planning Process

A key goal of the PEL concept is to integrate environmental issues and requirements early in the planning process to improve coordination and efficiencies in project development and implementation. Steps in the Long-Range Planning process where this can be achieved are described below.

3.3.1 Development of Corridor Visions and Needs

The SWP is corridor-based, including approximately 350 corridors statewide. Corridor visions include strategies aimed at meeting each corridor's unique transportation needs. Needs should be supported by population, employment, traffic, and safety data, as well as other appropriate considerations. A well-developed corridor vision and need statement can help prioritize corridors that would be candidates for PEL studies. It can also provide a basis for the development of the purpose and need in future NEPA studies.

3.3.2 Identification of Key Environmental Issues

The RTPs include an overall characterization of the environmental setting for each corridor and, when possible, identify critical environmental resources, areas of potential concern for impacts, and high level strategies for mitigation (e.g., wetland mitigation banking, habitat preservation). Although information is collected at a higher level, identification of environmental issues in priority corridors can assist with scoping for PEL studies and facilitate the development of future environmental studies and documentation.

3.3.3 Documentation and Data Management

Documentation included as part of the SWP could be useful in future environmental studies. For example, technical reports documenting agency coordination and consultation conducted as part of the long-range planning process could assist with stakeholder identification, categorizing critical environmental concerns, and overall scoping for a PEL study.

CDOT developed a web-based mapping and information system called CPLAN, designed to make it easier for agencies and the public to access CDOT maps and information. Geographic data pertaining to the SWP are visible in CPLAN, along with similar data provided by other resource agencies. Key users of CPLAN include: CDOT's planning partners; environmental resource and regulatory agencies; city and county governments; transit agencies; bike and pedestrian organizations; other transportation planning organizations; and the



general public. Data from CPLAN can be used to support PEL studies. In addition, data collected as part of a PEL study can be added to the database to facilitate data sharing and transportation planning activities. Such data management activities could be included in the scope of a PEL study.

Additional data management tools that could assist with the PEL process include Planning Insight Network (PIN) and Project Locator (ProLo). PIN is a web-based geographic information systems (GIS) interactive application that allows the public to access all of the RTPs and provide site-specific comments on transportation corridors. The public can also access corridor visions, goals, and strategies. The PIN tool is available when the SWP is actively being updated. ProLo is another web-based interactive geographic application that contains detailed information about transportation corridors and STIP projects. Together, CPLAN, PIN, and ProLo can be used to support data sharing, as well as solicit feedback and promote collaboration with resource agencies and the public.

3.4 How Long-Range Transportation Planning Defines and Supports PEL Studies

Long-range transportation planning provides the basis for a PEL study. Priority projects established through long-range transportation planning are most likely to be funded and constructed. When considering whether a PEL study would be beneficial for a particular corridor or transportation problem, the SWP and RTP should be used to answer the following questions:

3.4.1 Is the area identified as a priority in the SWP and RTP?

A first step in determining whether a PEL study is appropriate would be to review the SWP and relevant RTP. If the area is considered a low priority, a PEL study may not adequately support long-range planning and may not be justified. **The reasons for initiating a PEL study should be directly linked to the priorities contained within the SWP and RTP.**

3.4.2 How does this component of the transportation network relate to the overall system?

A PEL study would be most effective for those areas where there is consensus that a transportation problem exists, it is identified as a priority in the SWP and relevant RTP, and there is no consensus about how to address the transportation problem. **The PEL study can be used to consider options and identify solutions, constraints, and funding opportunities to advance projects in these priority areas.**

3.4.3 What information about the area is available in the SWP and RTPs?

The SWP and RTPs identify priority corridors and develop corridor profiles, which include an assessment of corridor characteristics, goals, and potential strategies. RTPs develop corridor-specific visions and provide information regarding existing conditions and environmental constraints. **Specific corridor profiles and visions should support the decision to conduct a PEL study.**

Once a decision to conduct a PEL study has been made, information included in the SWP and RTP can provide a foundation for the development of the study. **Table 3-1** describes key elements of the NEPA environmental review process and identifies potential ways in which the long-range transportation planning process can help to define and inform a PEL study. Each of these elements is defined in **Section 4.5** of this Handbook.



Table 3-1 Information Developed through Long-Range Transportation Planning and Applicability to the PEL Study Process

Element of the NEPA Environmental Review Process		Does Long-Range Planning help to Define the PEL Process?
Establish Logical Termini	The termini of the project should be determined during the earliest phases of the project. As defined by FHWA, logical termini are rational end points for a transportation improvement project and a review of the potential environmental impacts.	Yes. The SWP, RTPs, and STIP broadly define the areas identified for improvement. Limits would need to be revisited and defined once a PEL study is identified, particularly in areas where it is clear that improvements are needed but consensus regarding potential solutions has not been reached. The PEL study may identify multiple projects with logical termini within the broad corridors defined in the long-range transportation planning process.
Develop Purpose and Need	The purpose and need provide the justification for the project and drive development of the range of alternatives.	Potential. The SWP provides a corridor vision that has information about the corridor’s transportation needs, which can help frame the project’s purpose and need.
Develop and Analyze Alternatives	Developing and evaluating alternatives are the heart of the NEPA process, identifying one or more solutions to satisfy transportation needs and protect environmental and community resources.	Potential. The SWP neither directly identifies or evaluates alternatives nor conducts a fatal flaw analysis. However, the SWP and RTPs do discuss potential solutions that could serve as the starting point for the development of a range of alternatives.
Document Affected Environment	Documenting the existing resources and condition of the environment helps prioritize impact analysis and identify important constraints. The affected environment discussion should include the existing social, economic, and environmental settings surrounding the project. It should also identify environmentally sensitive features in the project corridor.	Potential. The RTP provides general demographic information, corridor conditions, and environmental information that support the characterization of the affected environment. However, specific data related to many of the resources are not provided and would need to be developed as part of the PEL study or future NEPA processes.
Identify Environmental Constraints and Impacts	This analysis identifies the potential impacts, both beneficial and adverse, of project alternatives. This information is used to compare the impacts of project alternatives, develop reasonable mitigation measures, and aid in decision making.	Potential. The SWP and, more specifically, the RTP identify general corridor conditions and provide environmental information and constraints that can help prioritize environmental impact analyses.
Identify Mitigation Measures	Mitigation must be considered for all impacts, regardless of their significance. The potential measures that could be taken to mitigate project impacts should be described in detail.	Potential. Although project-specific impacts are not evaluated in the SWP and RTPs, mitigation strategies are included in the plans in some instances.
Conduct Public Involvement and Agency Coordination	Public and agency involvement is required at various steps in the NEPA process and is a cornerstone of NEPA.	Yes. The SWP includes public and stakeholder participation. Those involved in planning efforts include TPRs and MPOs, the Statewide Transportation Advisory Committee (elected or appointed officials), FHWA, state and federal agencies, advocacy groups, tribal governments, and the public.



3.5 General Recommendations for Strengthening the Connections Between Long-Range Transportation Planning, the PEL Process, and NEPA

As CDOT continues to use PEL studies for program, regional, or statewide planning process, opportunities exist to strengthen coordination and leverage organizational expertise, such as in Statewide Planning, to improve information available for PEL studies. This includes the following:

- Develop a comprehensive problem statement in the SWP that can be referenced when developing the draft purpose and need statement for the NEPA process.
- As part of the SWP process, document any known environmental issues or constraints, including fatal flaws, and provide access to relevant public comments or concerns.
- Evaluate and thoroughly document stakeholder involvement, coordination with resource agencies, and decision-making rationale.
- Reference environmental issues identified in long-range planning efforts. Previous versions of the SWP included an Environmental Section in which relevant management plans and key environmental issues were identified for each TPR. This information is currently provided in the individual RTPs but is not provided in a separate environmental section in the current SWP so may be missed by PEL study teams. The current version of the SWP considered environmental issues at a broad level during the planning process. Explicit documentation of environmental considerations could be included in future revisions of the SWP.
- Encourage planning and environmental staff to work collaboratively on PEL studies to provide background, guidance, and establish expectations for subsequent planning products. This will help to identify issues and concerns early in the process and facilitate decision making throughout planning.
- Use and maintain web-based tools to manage and share data.
 - Educate internal staff, resource agencies, and the public regarding the purpose, use, and availability of web-based tools.
 - Continue to add data to the network from relevant studies and PEL activities.
 - Consider adding a GIS data management and coordination task to the scope for PEL studies.
- Provide ongoing training.
 - Provide training that includes resource agencies and transportation planners as two-way learning opportunities. Planners and environmental staff, in particular, would gain a better understanding of how the planning and environmental processes work and what information is most useful to the development of PEL and NEPA studies.
 - Train local governments about the scope and process for environmental analysis during the different stages of planning.

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4.0 How to Conduct a PEL Study

Previous chapters of this Handbook describe *what* a PEL study is and *why* a PEL study might be conducted. This chapter provides guidance on *how* to conduct a PEL study process consistent with FHWA and FTA guidance. Studies that transition into project development and NEPA are most common and are discussed in detail in this chapter. PEL studies can also be used to support policy or program development, such as the implementation of new technology. These program-level PEL studies follow a similar process to project-related PEL studies, both types needing to tailor the PEL approach to the reasons for the PEL study. PEL concepts are also applicable to the long-range planning process, which is covered in **Chapter 3** of this Handbook.

PEL studies can also be smaller studies that look at just one or two elements of planning or NEPA, such as determining logical termini or conducting a survey of red-flag environmental issues. In general, PEL studies should include some or all of the following processes:

- Determine the reason for the PEL study
- Develop a project scope of work
- Determine FHWA and CDOT involvement
- Identify stakeholders and participation methods
- Conduct PEL study steps outlined in the scope of work
- Identify next steps

For a PEL study to be a “PEL study,” it needs to do the following:

- Involve FHWA
- Solicit public input
- Solicit resource agency input
- Use the FHWA PEL questionnaire to guide and document the study
- Obtain a study acceptance letter from FHWA

Until the FHWA Proposed Rule Making regarding the PEL concept is finalized, the PEL process has flexibility in how these goals are met. Generally, FHWA should be involved at the four primary Coordination Points discussed in **Section 4.3.1** of this Handbook. Public and resource agency input should be solicited, but the means of doing so may vary. For example, the general public does not have to be involved in the study; key stakeholders may be the most appropriate members of the public to involve. A public meeting does not need to occur; input may be solicited through other means. Methods for meeting these goals should be discussed with FHWA and the project team for individual studies.

4.1 Determine the Reason for the PEL Study

The first step in the process is deciding the reason for the PEL study. In other words, why is the study being conducted, what are the goals of the study, and what will be the outcome? A PEL study can address program-related or project-related needs. Reasons for a PEL study might include prioritizing improvements along a corridor and developing a range of alternatives to consider.

Before initiating a PEL study, the CDOT region (and local agency if the study is a local agency project) should hold a pre-scoping meeting with FHWA and the PEL Program Manager to clarify the purpose of the study. This meeting will help determine whether the PEL process is the appropriate method to study the issues being considered or whether another type of study or planning process would be more appropriate. For example, if key issues are access management in a corridor or a particular interchange’s operations or configuration, developing an Access Management Plan or a System Level Study under CDOT Policy Directive 1601 may be better suited to address the needs than a PEL study. Or these other studies may be conducted in conjunction with the PEL study. The pre-scoping meeting will also review the conditions for which a PEL study is appropriate (see **Chapter 1** of this Handbook).



For those studies suited to the PEL process, the pre-scoping meeting should determine which steps in **Section 4.5** of this Handbook will be addressed by the study. Once the reason for the PEL study has been determined, the project can be initiated and a scope of work developed.

4.2 Develop and Understand the Scope of Work

Once a decision has been made that a PEL study is appropriate, the CDOT Region and/or local agency assigns a Project Manager, who is responsible for developing a scope of work for the PEL study. The CDOT Program Engineer assigns the 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) or designee and the PEL Program Manager in the scoping of the project, developing a scope of work, and tracking documentation or project milestones. Early coordination 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 or designee, PEL Program Manager, planning and environmental specialists, and FHWA Area Engineer is recommended for preparation and review of a project-specific scope of work. The FHWA PEL Questionnaire and CDOT Scoping Form can be useful tools when developing the scope of work. The PEL Questionnaire provides a practical framework for identifying the work to be completed during a PEL study and can also be used to chart progress through the study.

The FHWA PEL Questionnaire requests that lead agencies decide at the start of a PEL study how the work will later be incorporated into subsequent NEPA efforts, and decide whether the PEL study will meet standards established by NEPA regulations and guidance. These decisions should be taken into account when developing the scope of work. An example scope of work is included as **Appendix B** of this Handbook. **Figure 4-1** is an example PEL study schedule for a study that follows every step in the PEL process.

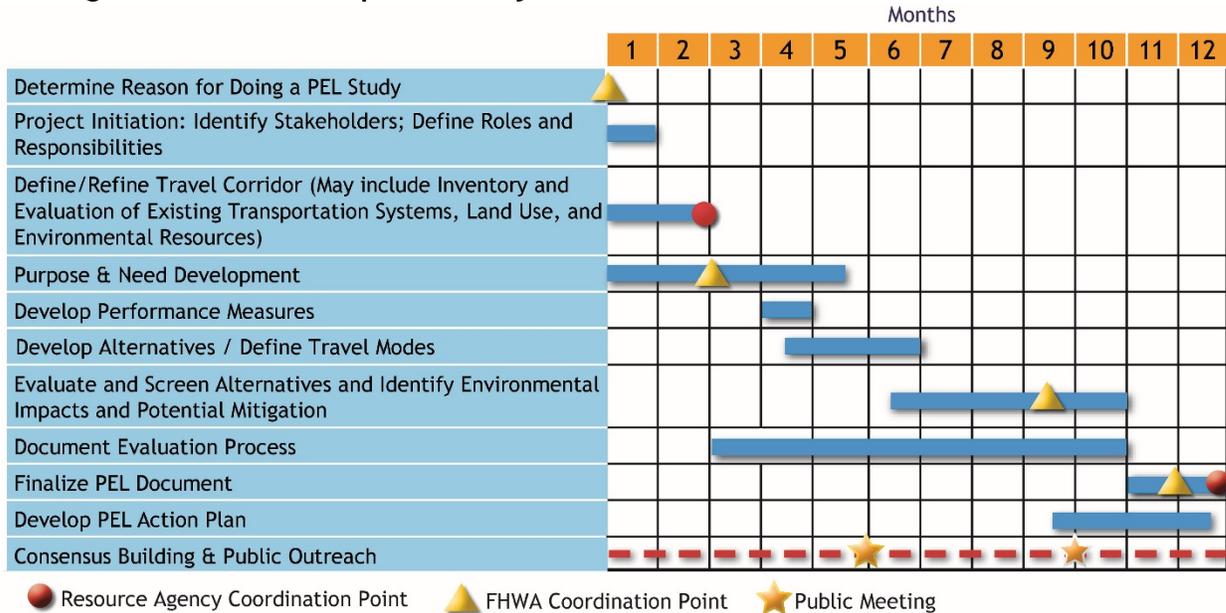
The project-specific scope of work may include items such as the following:

- Identification of the appropriate travel demand model, existing and future transportation system, and affected environment at an appropriate level of detail
- Determination of appropriate level of traffic analysis
- Preparation of a purpose and need
- Development and analysis of alternatives
- Documentation consistent with the requirements presented in **Chapter 5** of this Handbook so information developed can be appended or referenced in a NEPA document
- Public meetings
- Resource studies/reviews
- Coordination with resource agencies regarding resource conditions and study results
- Coordination with local stakeholders (such as municipalities and counties)
- Coordination with FHWA at the Coordination Points presented in **Section 4.3.1** of this Handbook

An action plan identifying the potential funding, phasing, and prioritization of the project is not required by FHWA as part of the PEL study. However, action 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 4-1 Example PEL Project Schedule



4.3 Determine Who Will Be Involved in the Study

4.3.1 FHWA Involvement in CDOT-Led PEL Studies

FHWA involvement in PEL studies is required for projects that have a federal nexus and are likely to require compliance with NEPA in the future. Although the PEL process is voluntary and flexible, certain steps and Coordination Points are required for the PEL study to be incorporated into NEPA. FHWA sometimes participates in planning activities throughout the PEL study process, but in all cases, PEL studies are required to involve FHWA at four formal Coordination Points (Figure 1-1 and Figure 4-1). Coordination Points are check-in points that confirm the progress to date, review any issues or concerns, and lay out next steps to the next Coordination Point. These check-ins are intended to help reduce delay in the overall study review process (to avoid back tracking) and to facilitate future NEPA processes by ensuring that required elements for incorporating the PEL study into future NEPA processes are included.

The following four FHWA Coordination Points are required for PEL processes:

- Coordination Point 1 – Determining the reason for the PEL study
- Coordination Point 2 – Purpose and Need
- Coordination Point 3 – Alternatives to be evaluated during the PEL study
- Coordination Point 4 – PEL Document (draft and final review)

Each Coordination Point coincides with a project milestone and is summarized below. Appendix C of this Handbook contains example FHWA and CDOT acceptance letters. Additional Coordination Points are sometimes helpful but are not required. For instance, discussing and agreeing upon traffic analysis methods and timeframes can save money and improve stakeholder coordination.

Coordination Point 1 – Determining the Reason for the PEL Study

Provides an opportunity for FHWA to give input on the reason for the study and the CDOT PEL Manager to give input on the purpose and scope of the PEL study prior to developing the scope of work. Reviewing the reasons for and expected outcomes of the PEL study are important for determining which portions of the FHWA PEL Questionnaire are applicable in the documentation, which in turn guides the scope of work.



Coordination Point 2 – Purpose and Need

Provides an opportunity for FHWA to give input on the purpose and need statement and for the purpose and need statement to be revised based on this input, as appropriate.

Coordination Point 3 – Alternatives Screening

Ensures FHWA has an opportunity to provide input during alternatives development, refinement, evaluation, and the recommendation of alternative(s) to be evaluated in future NEPA studies. The output of Coordination Point 3 will be a decision on:

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

Coordination Point 4 – PEL Document

Based on the inputs of Coordination Points 1, 2, and 3, a PEL document will be prepared.

The output of Coordination Point 4 will be concurrence on:

- Adequacy of the document for incorporation into future NEPA processes
- Specification for changes or additional information needed for the final document
- Recommendations for future projects and/or NEPA processes that may arise from the PEL study

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** of this Handbook). The FHWA acceptance letter will document the accomplishments 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 study.

4.3.2 FHWA and CDOT Involvement in Local Agency PEL Studies

When a local agency decides to conduct a PEL study, the agency must hold a pre-scoping meeting with CDOT and FHWA to determine the reasons for and expected outcomes of the study and the appropriateness of the PEL process to meet those objectives. This constitutes Coordination Point 1 – Determining the Reason for the PEL Study.

If a PEL study is initiated, the local agency should, at a minimum, involve CDOT in the remaining Coordination Points 2, 3, and 4 listed in **Section 4.3.1** of this Handbook. CDOT's additional involvement in the local agency PEL study can be negotiated, but will be at least similar to FHWA's involvement in CDOT-led PEL studies. CDOT will be the liaison between the local agency and FHWA, and ask for FHWA's involvement when necessary.

4.4 Identify Stakeholders and Participation Methods

Similar to the CDOT planning and NEPA processes, stakeholder involvement is a key component of the PEL process that encourages stakeholder participation in the decision-making process from conception to completion. The goal of a stakeholder involvement program is to provide appropriate involvement throughout the process and solicit feedback from the community on steps such as the purpose and need statement, alternatives developed, the alternatives evaluation process, environmental analysis, and mitigation strategies. This section 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.

The formal requirements for stakeholder and agency involvement are listed in **Section 2.3** of this Handbook; until FHWA's Proposed Rule Making regarding planning and environmental linkages is issued, the process for involving resource agencies remains flexible.



In general, stakeholder involvement for CDOT PEL projects follows Chapter 7 of the *CDOT NEPA Manual* (CDOT, 2014). There are also specific public involvement requirements that should be incorporated, as appropriate. Guidance can be found online at: <http://www.coloradodot.info/programs/statewide-planning/public-involvement.html>.



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?

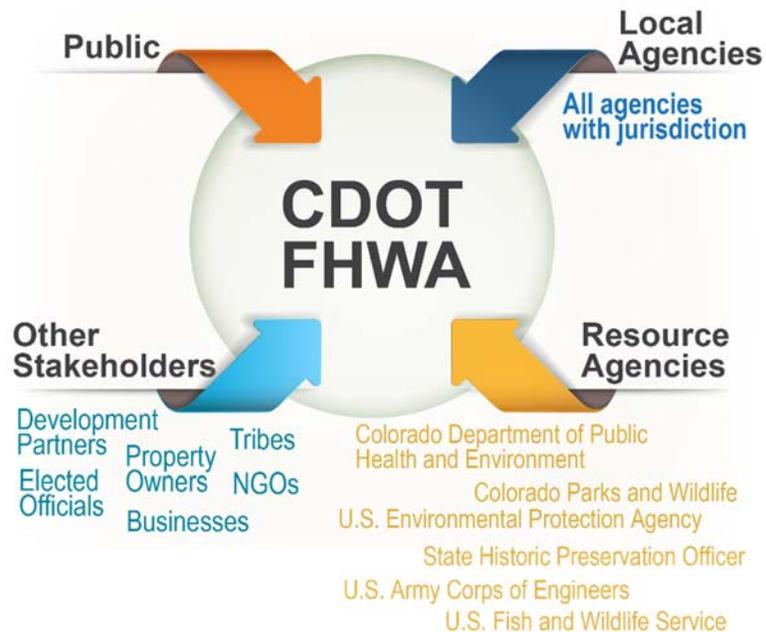
Public Coordination:

- 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?

4.4.1 Identify Project Stakeholders

Early and continuous stakeholder engagement is one key to a successful PEL study. Stakeholders can include the general public, businesses, government agencies, non-government organizations, and other interest groups that either have or perceive an interest in the PEL study (see Figure 4-2). 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 being asked/addressed by the PEL study. Stakeholder participation helps 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 can be accomplished by talking to key decision makers within the study area.

Figure 4-2 Example of Project Stakeholders



Resource and Regulatory Agencies

FHWA and CDOT have standing relationships with federal, state, and local resource agencies through the Transportation Environmental Resource Council (TERC), which was formed in 2002 to provide a forum to discuss state transportation decisions and plan for environmental stewardship. In 2009, 15 TERC member agencies



The Transportation Environmental Resource Council PEL Partnering Agreement is the framework for coordination with resource and regulatory agencies during the PEL process. Unlike under NEPA, agency involvement in a PEL study is voluntary on the part of the agency.

The TERC website is:

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



“The PEL approach enables agencies to be more effective players in the transportation decision-making process through its focus on building interagency relationships. By encouraging resource and regulatory agencies to get involved in the early stages of planning, agencies have an opportunity to help shape transportation projects.”

FHWA Environmental Review Toolkit PEL web page:
<http://www.environment.fhwa.dot.gov/integ/index.asp>

signed a PEL Partnering Agreement endorsing the use of a PEL approach in a manner that meets agency needs, expedites transportation project delivery, and fosters proactive working relationships among governmental agencies. The PEL Partnering Agreement promotes continued coordination, “including our commitment to active participation 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). The PEL Partnering Agreement is the framework for coordination with resource and regulatory agencies during the PEL process. Unlike under NEPA, agency involvement in a PEL study is voluntary on the part of the agency.

If a PEL study will identify and evaluate environmental resources, all federal, state, and local agencies with jurisdiction by law or special expertise with regard to issues related to the PEL study should be notified of the study once it begins. This notification typically takes the form of a letter from CDOT introducing the study, providing the opportunity to ask questions about the study, and informing agencies that CDOT will request additional input when the Existing Conditions Report is available.

Earlier PEL studies requested resource agencies provide comments early in the study process, but practice has shown that agencies provide the most effective comments when they are able to comment on an Existing Conditions Report. Therefore, after the draft Existing Conditions Report/Environmental Scan is completed, the agencies should be invited to participate in the process through review and comments on the Existing Conditions Report. Regulatory and/or resource agencies to consider include, but are not limited to, the following:

- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- Colorado Department of Public Health and Environment
- State Historic Preservation Officer (SHPO)
- Colorado Parks and Wildlife

Coordination with resource and regulatory agencies is necessary to confirm all applicable constraints (and the severity of those constraints) have been recorded during the process. The coordination opportunities are generally project-specific and vary in intensity for different resource and regulatory agencies based on the scope and breadth of issues within a given study area. However, in the event that agencies choose not to provide input, the PEL products can still be carried forward into the NEPA process with the recognition that additional coordination will likely be required during the NEPA phase.

Resource agencies can provide specific technical expertise and regulatory oversight on various environmental issues and potential project impacts. All agencies with expertise or jurisdiction related to the PEL study should be invited to provide comments on the



Existing Conditions Report and should be sent the final PEL document and information about next steps. The SHPO may require additional coordination, which must be conducted through the CDOT historian. The amount of coordination with the SHPO is project-specific and based on project timing and priorities. Although PEL studies do not create an Area of Potential Effects because there is no federal undertaking as part of a PEL study, the Existing Conditions Report should contain enough information for the SHPO to provide comments or direction on next steps and/or the significance of historic property issues for future NEPA processes.

Local Agencies

At the start of the PEL study, any local agencies that might be impacted by the project should be invited to participate. These agencies provide vital information concerning existing and future land uses and transportation-related data. Also, coordination with the surrounding local agencies helps support the overall study results and the decision-making process, which transitions into future NEPA processes. In some cases, local agencies will be the lead for the PEL study, and their participation will be more significant as the project sponsor.

Public

Including the general public at the start of the PEL process helps to identify issues, attempts to provide more information about the overall study and understanding of recommendations that come out of the study, and foster relationships with the public.

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 residents and businesses within the study area. These stakeholders may have an interest in the study area and can assist with input on the study.

4.4.2 Identify Participation Methods

There are a variety of appropriate public participation techniques for various stages in the PEL process. Outreach techniques should be context-sensitive and tailored to the study area (e.g., provide a translator, if necessary). Stakeholder involvement comes in many forms, as described below:

- Informational outreach techniques (e.g., public and small group meetings, news releases, and websites) 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 meetings, smaller group meetings, technical committees, visualizations, electronic town halls) are useful for obtaining specific input and feedback about the project area, purpose and need, alternatives, and environmental resources affected

For information and guidance about public outreach techniques and examples, refer to Chapter 7 of the *CDOT NEPA Manual* (CDOT, 2014).

4.5 Steps for Conducting a PEL Study

The steps for conducting a PEL study depend on the reason for the PEL study, which should be considered and documented in the scope of work. Sections 4.1, 4.2, and 4.3 of this Handbook explain the early activities that will shape the PEL study.

The FHWA PEL Questionnaire provides a list of items to consider in conducting the PEL study and assist with the transition to NEPA. However, PEL project teams have the flexibility to conduct a PEL study that responds to all of the FHWA PEL Questionnaire items or a smaller, more focused PEL study that responds to pieces of the FHWA PEL Questionnaire. Smaller, more focused PEL studies are



PEL studies are project-specific and will not all follow the same steps or contain the same level of detail or information.



Further guidance regarding purpose and need can be found in CDOT's Purpose and Need Guidance in the *CDOT NEPA Manual*, FHWA Technical Advisory Guidance for *Preparing and Processing Environmental and Section 4(f) Documents* (FHWA, 1987), FHWA Memorandum *The Importance of Purpose and Need* (FHWA, 1990), and the FHWA Memorandum *Regarding Integration of Planning and NEPA Processes* (FHWA, 2005a)

generally conducted when there is a particular issue that needs to be studied (such as safety issues or access management in a specific corridor).

However, large corridor or program-level PELs may also streamline the PEL steps, as the investment in detailed traffic or environmental studies may be better suited to the NEPA process, leaving the PEL study to identify the important issues to be addressed in NEPA but not necessarily to address those issues in the PEL. PEL studies follow unique processes specific to the PEL study's objectives and will not all contain the same level of detail or information.

This section provides guidance on conducting steps based on the FHWA PEL Questionnaire, with the understanding that many studies may not follow each step and the information needed to complete a step may vary. Determining which portions of the FHWA PEL Questionnaire are applicable and the methods by which the information will be collected and analyzed are important parts of the scoping process.

4.5.1 Identify Purpose and Need

The purpose and need statement is typically synonymous with the corridor vision and goals in a corridor planning study; however, PEL studies are not all corridor studies and can evaluate site-specific projects, such as interchange improvements, or program-level policies or decisions. The purpose and need statement identified the needs to be addressed and informs recommendations. The purpose and need does not have to be advanced to the same level of detail as one developed during the NEPA process and will vary based on the type of PEL study. Detail provided during planning reduces the amount of time spent on purpose and need development during the NEPA process. For some studies, the purpose and need statement may be a general vision and articulation of broad needs or can be specific to a localized transportation problem. For large corridors or programs, the purpose and need should be general enough to capture the localized issues inherent with individual projects (i.e., a project-specific purpose and need).

Developing a purpose and need statement is essentially the foundation of NEPA and the decision-making process. According to Council on Environmental Quality (CEQ) Regulation 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. A thoughtful purpose and need developed during a PEL study will increase the relevance of the PEL study information in NEPA and will help focus the PEL study in the same way that the purpose and need is foundational for the NEPA process.

For information and guidance about developing a purpose and need, refer to Chapter 4 and Chapter 6 of the *CDOT NEPA Manual* (CDOT, 2014).

Defining Planning Context

The planning context based on the SWP 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



The SWP/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 6-year capital programming document that prioritizes projects.

documentation without revisiting those decisions, depending on the transportation planning process followed and the magnitude and sensitivity of related issues. The project team should begin by reviewing the current SWP and RTPs within the identified corridor, as well as the STIP and TIP for currently programmed improvements in the area. 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 work closely with the RPEM or designee 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.

Identify goals

The goals for the project or program are the design and operational criteria established to evaluate and prioritize alternatives for transportation improvements or investments. Examples of goals that could be the focus of a PEL study include:

- Identify solutions to improve traffic operations and minimize impacts to existing infrastructure
- Identify solutions to improve safety
- Characterize existing and future problem areas within the project study area

Figure 4-3 provides an example illustration of existing and projected operational and safety deficiencies used to develop a purpose and need for an urban corridor study in Denver.

Define Study Extents

The study extents should also be identified based on a preliminary analysis of the independent utility and logical termini. Identification of the project extents is important to identify which resources will be evaluated (or not) as part of the study. The initial project study area may be refined as the purpose and need statement is developed and the transportation needs are identified for the project. For planning- or program-level PELs, the project extent may be regional or statewide or may not be location specific but the project extents should still be identified.



Further information on logical termini and independent utility can be found in FHWA regulation 23 CFR 771.111(f). For more information, visit:

<http://www.fhwa.dot.gov/legregs/directives/fapg/cfr0771.htm>

Independent Utility/Logical Termini

For project-focused PEL studies, the project study area for resources reviewed, and any phase of the project identified in an action plan, must have logical termini and independent utility. Independent utility and logical termini mean that a project would be functional even in the absence of other projects in the area. This lays the appropriate groundwork for future NEPA analyses. According to *NEPA and Transportation Decisionmaking: The Development of Logical Project Termini* (FHWA, 1993), logical termini and independent utility 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 and independent utility, as described below:

- Connect logical termini and independent utility 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, 2014).

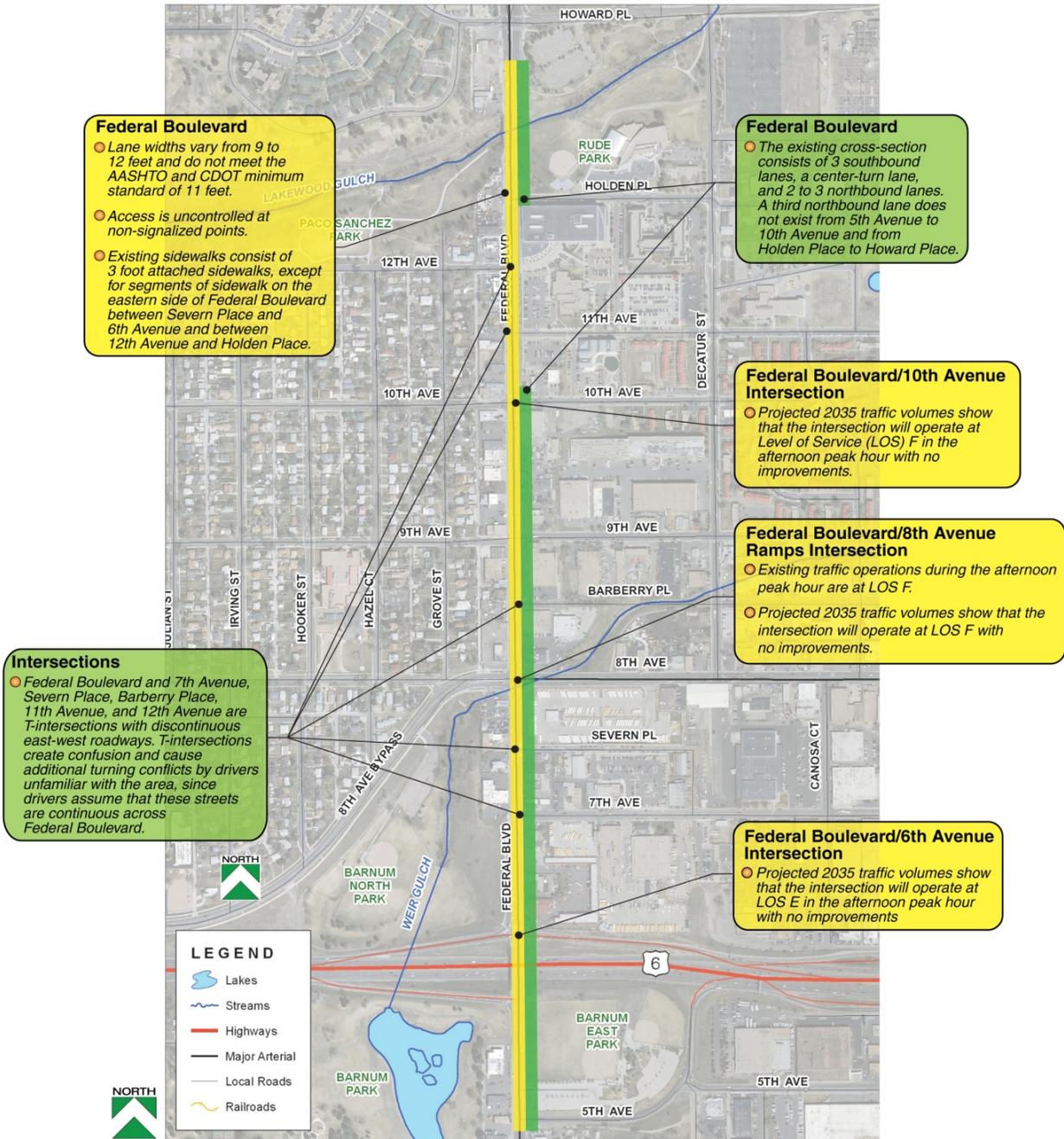
Identify the Travel Demand Model

For studies using a travel demand model to forecast future transportation conditions, an important part of the scope of work is to identify the travel demand model and design year. Identifying the travel demand model and defining the No-Action Alternative (described in **Section 4.5.3** of this Handbook) are important elements to develop the needs portion of a purpose and need statement. Although not a formal Coordination Point with FHWA, the travel demand model will need to be verified and approved by FHWA.

In both the PEL and NEPA processes, understanding existing and future traffic operations is essential in determining the need for a project. Typically, the travel demand model will include the planned land uses from the metropolitan planning organization's traffic model. This ensures consistency between the project-specific model and the regional model. The regional information can be supplemented by local planned use information if needed, for example, if there have been recent changes at the local level not yet reflected in the regional model.



Figure 4-3 Example of Existing and Projected Operational and Safety Deficiencies



Source: City and County of Denver, CDOT, and FHWA, 2009



4.5.2 Research and Define the Existing and Future Transportation Systems



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

The transportation system includes the entire transportation network within the project extents, including roadway, railroad, transit, bicycle, and pedestrian facilities. Evaluating the existing and future transportation system conditions provides a framework for alternatives development and evaluation in the PEL study. The existing transportation system is the transportation network within the project extents, as it exists today. The future transportation system is the transportation network within the project extents, as it would be 20 to 25 years in the future if all of the transportation improvements listed in the STIP or RTP were implemented, including transit, bicycle, and pedestrian improvements.

Defining the existing and future transportation system helps provide a picture of the existing and future transportation system within the project extents and to determine how the alternatives impact future traffic conditions. This effort, which is often documented in an existing condition report, relies on professional judgment and general knowledge of the project corridor to determine the information sources needed to provide an overview of the existing and future transportation system. An example of a transportation Existing Conditions Report can be found at: https://www.codot.gov/projects/i70kiplingpel/final-reports/I70Kipling_Environmental-20ScanReport_053112_reduced-20file-20size.pdf/view (CDOT, 2012a). 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 (ROW) and access
- Arterial lanes and access
- Safety records and traffic volumes
- Major concentrations of travelers
- 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
- Adjacent and parallel transportation facilities that 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



Scope of Traffic Analysis

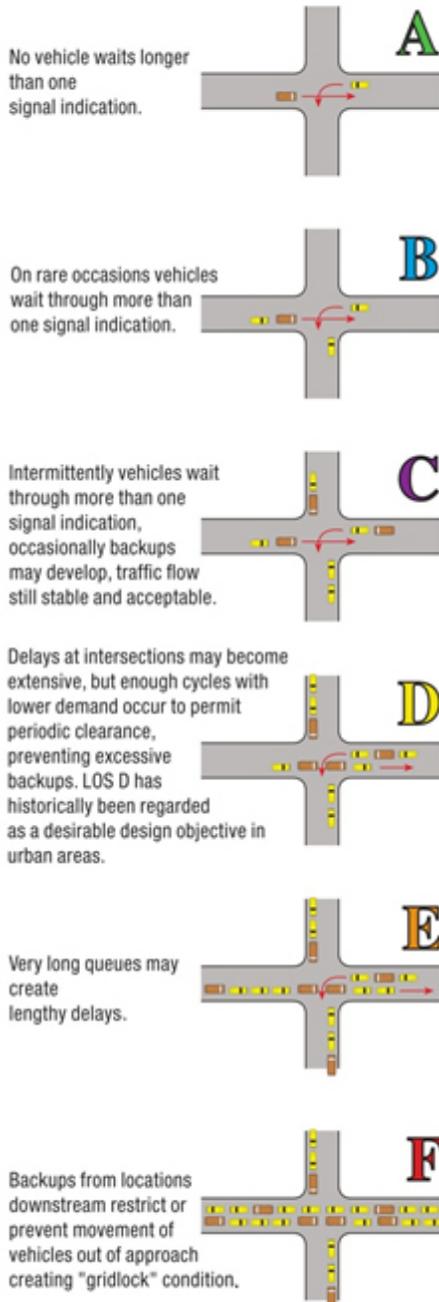
Key aspects of the traffic scoping include:

- **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.



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

Roadway Levels of Service



Traffic

Outputs from travel demand modeling include the following:

- **Level of Service (LOS)** – Methods documented in the *Highway Capacity Manual* should be used in the traffic analysis (Transportation Research Board, 2010). The result of such an analysis is an 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,” with levels 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.
- A.m./p.m. 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, ROW widths, location and types of crossings, stations, speed of travel, crossing signalization, safety records, schedules, and usage rates.

This assessment helps develop an understanding of the potential constraints and requirements railroad facilities and operations may place on the alternatives analysis/development.

For additional information and guidance about railroads, refer to Section 9.18 of the *CDOT NEPA Manual* (CDOT, 2014).

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



The Level of Service of Safety (LOSS) concept quantifies how a road segment is performing regarding the expected crash frequency and severity for its average annual daily traffic. The number of deviations from the norm (expected crash frequency and severity) represents specific levels of safety:

- LOSS-I — Indicates low potential for crash reduction
- LOSS-II — Indicates low to moderate potential for crash reduction
- LOSS-III — Indicates moderate to high potential for crash reduction
- LOSS-IV — Indicates high potential for crash reduction



Bicycle and pedestrian facility information is available in CDOT's 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.

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.

This assessment helps to identify missing transportation infrastructure, as well as multimodal connections among transit, vehicles, bicycle, and pedestrian facilities that could or should be addressed as part of the alternatives development/analysis.

Bicycle and 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. Americans with Disabilities Act (ADA) accessibility should also be considered.

This assessment helps to identify missing bicycle, pedestrian, and ADA-accessible 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

Existing and proposed utilities should be assessed via a review of utility company maps and field review. 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).

This assessment helps 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 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.

Other Projects in the Study Area

The PEL study should identify and consider other transportation or large development projects (ongoing and future) in or within the vicinity of the study area. Identification of such projects facilitates early coordination with other nearby projects, helping to achieve consistency and support of these other projects.

4.5.3 Reasonable Range of Alternatives

PEL studies often include developing and analyzing a reasonable range of alternatives. The process varies according to the corresponding scope of work. Alternatives can range from broad options to address a program-related issue, such as deploying new technology, to corridor visions or short- or long-term location-specific design options.



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.

Develop the Alternatives Evaluation Process

PEL studies often develop, refine, and screen 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. The PEL study can use information from the alternatives evaluation process to recommend alternatives and eliminate alternatives that do not meet the purpose and need. As such, documentation of the alternatives analysis and evaluation is critical if such recommendations are 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 reasons alternatives were recommended, feasible (but not the recommended alternative[s]), or eliminated.

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. Alternatives should only be eliminated if they do not meet purpose and need or have fatal flaws, such as costs or impacts that prohibit the alternative from being built.

If two or more alternatives identified in the PEL study meet the purpose and need, but one alternative may avoid impacts or provide better traffic operations (as examples), the NEPA study will need to evaluate all of the alternatives that met the purpose and need and reconfirm the recommendations of the PEL study based on the more detailed design and environmental impact analysis that is conducted in the NEPA process. The PEL study can recommend a single alternative and document the reasons. However, the NEPA process should make the final determination regarding eliminated and preferred alternatives.

According to FHWA and FTA guidance (2005a), if alternatives are eliminated from detailed study prior to NEPA, 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
- The appropriate federal, state, and local resource agencies must be engaged in the PEL alternatives analysis
- The results of the PEL alternatives analysis process must be documented



For information and guidance about the alternatives analysis process, refer to Section 4.7 of the *CDOT NEPA Manual* (CDOT, 2014), located online at: <http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>



For the FHWA PEL Questionnaire, the project team will 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 were screening criteria and screening processes selected?
- For screened out alternative(s), 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, or agencies?

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. NEPA scoping confirms the alternatives to be considered in the NEPA process, and the NEPA document incorporates the PEL alternatives evaluation. For additional information and guidance about the evaluation of alternatives, refer to Section 4.7 and Section 6.4 of the *CDOT NEPA Manual* (CDOT, 2014).

PEL studies can also help identify interim or smaller individual projects as part of the alternatives evaluation process. Temporary or small projects that address portions of the purpose and need, or that address the purpose and need in a localized area, can be recommended and documented in a prioritization or phasing plan (see **Section 4.6.2** of this Handbook).

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 depends 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:

- Reduce crash rates
- Roadway LOS 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 (automobile, bicycle, pedestrian, and transit [bus and train])
- Enhance multimodal transportation options.
- Avoid and minimize impacts to environmental resources
- Minimize temporary improvements and maximize improvements that serve both interim and long-term needs
- Enhance local community character

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

Define No-Action Alternative

Similar to the NEPA process, a PEL study should evaluate a No-Action Alternative. The No-Action Alternative typically does not meet purpose and need but is used as a baseline comparison to compare alternatives. The No-Action Alternative does not provide any improvements beyond the existing transportation system; however, the No-Action Alternative includes safety and maintenance activities required to sustain an operational transportation system.

To aid in identifying travel demand forecasting methods (**Section 3.2.4** of this Handbook) and resource impacts directly related to traffic volume, such as traffic 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 identified as part of the project. Travel demand forecasting predicts traffic conditions 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 and Section 6.4 of the *CDOT NEPA Manual* (CDOT, 2014).

Recommend Alternative(s) for Future NEPA Studies

PEL studies that will or plan to transition to NEPA should present an evaluation of alternatives in comparative form to 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 particular alternative over other reasonable alternatives.

One of the possible outcomes of the alternatives development process is the conceptual design for the alternatives being carried into the alternatives evaluation process. A cross section study should be developed for these types of alternatives. This information should be sufficient to approximate general cut and fill limits, toe of slope locations, ROW needs and easement requirements, earthwork requirements, structural requirements, and high-level environmental impacts. In some cases, more design detail may be needed to support the alternatives evaluation.

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.) supports planning-level cost estimates.

Alternatives are often adjusted throughout the PEL process to minimize harm to the environment and communities. The PEL study's recommended alternative(s) would typically incorporate avoidance and minimization strategies into the design and achieve the best balance between needs, impacts, costs, and other objectives. It is important to note that multiple alternatives may be recommended during the PEL process for further evaluation in NEPA.



“...if the planning process is used to screen or narrow the range of alternatives... then the planning-based analysis of alternatives: should describe the rationale for determining the reasonableness of the alternative or alternatives; should include an explanation of why an eliminated alternative would not meet the purpose and need or was otherwise unreasonable; and should be made available for public review during the NEPA scoping process and comment period.”

(FHWA and FTA, 2005a)



It is important to remember that although the PEL study may recommend alternatives for implementation or elimination, the final determination regarding eliminated and preferred alternatives is made during the NEPA process.



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 not reviewed in the PEL study and why. Indicate whether or not these resources will need to be reviewed in NEPA and explain why.

More detail on taking the PEL study recommended alternative(s) into NEPA is provided in **Chapter 6** of this Handbook.

Generally, there is not enough analysis completed during a PEL to definitively eliminate reasonable alternatives. The only alternatives eliminated in PEL studies are those shown to be not feasible based on the purpose and need or fatal flaws, e.g., features that would prohibit it from being built. Within the remaining reasonable alternatives there should be “recommended” and “feasible” determinations. If there is not enough information available for the project team to make specific recommendations, there can be several recommended alternatives, as discussed above. It is important to remember that although the PEL study may recommend alternatives for implementation or elimination, the final determination regarding eliminated and preferred alternatives is made during the NEPA process.

Because EISs are developed for projects likely to have significant environmental consequences, the alternatives development and analysis process for an EIS is often lengthy and detailed. Therefore, in cases where an EIS is the likely NEPA process after the PEL study, the PEL study may evaluate alternatives broadly, setting the stage for the range of alternatives that will need to be fully evaluated in the EIS.

4.5.4 Conduct Environmental Evaluation

The scope of the environmental evaluation for a PEL study will vary depending on the type of and reason for the PEL, which will be outlined in the scope of work. The goal of the evaluation should be to identify resources that may affect future NEPA actions, project schedules, or project costs; understand potential impacts on these resources; and identify potential avoidance, minimization, and mitigation measures. Resources that may affect future project development include those that may require avoidance or minimization of impacts during alternatives development, have lengthy environmental clearance processes, or are likely to be controversial or complicated.

Scoping and Identifying Important Resources

At the start of the project, the project team must identify key environmental resources in the study area that could require avoidance or minimization of impacts during alternatives development, such as wetlands, hazardous materials sites, or floodplains. The project team should also identify potentially affected resources that have lengthy environmental clearance processes, such as historic resources, recreational resources, wetlands and other waters of the U.S., and protected species. The *CDOT NEPA Manual* (CDOT, 2014) and *CDOT Project Development Manual* (CDOT, 2013) provide more information about resource considerations and regulatory requirements that future individual projects would need to address, to assist project teams in identifying key resources in the PEL study. The FHWA PEL Questionnaire provides a list of resource considerations in Question 8 (see text box at left).



Development of an “environmental overview” section or “existing conditions” section for a PEL study is similar to the development of the Affected Environment section of an EA or EIS. However, the overview will typically be at a higher level, focusing on identifying key issues and resources to be considered in future NEPA and design activities, rather than conducting lengthy field reviews and impact analyses on an exhaustive list of resources. An example Environmental Existing Conditions Report, or Environmental Scan, can be found at: https://www.codot.gov/projects/i70kiplingpel/final-reports/I70Kipling_EnvironmentalScanReport_053112_reduced.pdf/view (CDOT, 2012b).

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 than a planning-level project that may identify trends or big picture constraints. Quantifying resource impacts in the study area may or may not be desired, depending on the scope and objectives of the particular PEL study. 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 provide the existing conditions required for evaluating potential environmental consequences of the transportation strategies within the PEL study. The environmental overview should also be a strong resource for developing alternatives that will avoid or minimize impacts associated with the project, if alternatives development and recommendation is one of the objectives of the study. 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 the future project-related NEPA process(es). Typically, the information included in the PEL study will be supplemented during the NEPA process to fulfill the requirements of NEPA and other environmental laws and regulations.

The PEL may consider cumulative impacts analysis by identifying the geographic context for analysis, projects that may contribute to cumulative effects, resources sensitive to cumulative impacts, or other factors. The goal of considering cumulative impacts in a PEL study 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 and FTA, 2005a). CDOT could conduct a PEL study solely for the purpose of creating a baseline that future projects could use for cumulative impacts analysis.

After identifying key environmental resources, 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, 2014). 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., U.S. Fish and Wildlife Service). Baseline information is typically collected using 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, 2014).

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.

Identifying 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, 2014). 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).

Early in the planning stages, the project team should be able to identify potential environmental impacts and key environmental resources in the study area. The level of analysis will vary based on project-



specific factors; however, the analysis will not be as robust as that conducted during a NEPA study, but 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 (**Chapter 5** of this Handbook), with less important material summarized, consolidated, or simply referenced.

For additional information and guidance about assessing potential impacts for a project, refer to **Section 4.8** and **6.5** of this Handbook and Chapter 9 of the *CDOT NEPA Manual* (CDOT, 2014).

Recommending Mitigation Strategies

The PEL study could identify potential mitigation strategies for impacts identified with the alternatives. Per the *CDOT NEPA Manual* (CDOT, 2014), 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:

- Avoidance and minimization strategies
- Mitigation strategy
- Basis for the mitigation strategies
- 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, 2014).

4.6 Identify Next Steps for Project Implementation

The next steps, like all steps in the PEL process, are dependent on the type, timing, and recommendations of the PEL study. A PEL study is intended to provide the framework for implementing transportation improvements, considering needs, funding, and requirements for future NEPA documentation. In addition, a PEL study provides information to support the NEPA process, including identifying issues that require additional evaluation and recommending methods to address those issues in any future NEPA documentation.

4.6.1 Outstanding Issues

The PEL study should identify any actions that need to happen before a future NEPA process can occur. These things could include, but are not limited to the following:

- Resources that need additional research
- Amendments to local agency land use plans
- What funding sources are reasonably available

4.6.2 Action Plan

In cases where a project or program 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. Additionally, the action plan must demonstrate compliance with other statutory requirements.



Mitigation strategies needed in response to project impacts are typically implemented with the phase in which the impacts occur, rather than deferred to a later phase.

Independent phases for the project should meet the following 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 overall project or program
- **Environmental Impacts** – Individual phases should not introduce substantial additional environmental impacts that cannot be mitigated
- **Mitigation Paired with Impacts** – Each phase should include appropriate strategies to mitigate the environmental impacts of that phase

Establishing meaningful project phases and connecting them with potential funding packages helps to further the projects identified in the PEL study. In addition to these criteria, project phases should be sequenced and prioritized logically in terms of constructability and operations.

Given the variability in the amount and timing of funding, the project team can work with the project stakeholders to identify and prioritize projects for a range of funding scenarios to maximize benefits within available funding. 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, surface treatment, enhancement, or SWP/RTP metro funds) 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.

As part of the PEL study, the project team may develop an action plan that provides the following information:

- Prioritize transportation needs
- Identify funding that can be reasonably expected to be available for major transportation projects within the current planning horizon, as identified in the RTP and SWP
- Defines logical project phases that can be implemented as individual projects based on funding availability, as well as groups of project phases that can be packaged as a larger project if funding becomes available, considering the projected funding sources with the transportation needs
- Identify interim projects that can be implemented with limited funding
- Identify the preliminary class of NEPA action required for individual projects expected to receive federal funding (i.e., CatEx, EA, or EIS)

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5.0 Documentation Requirements for a PEL Study

The PEL study process and results must be recorded in a PEL document at the end of the study. This chapter provides information on the documentation requirements for a PEL study, including the study analysis and decisions [fulfilling conditions set forth in 23 USC 168(d)], the FHWA PEL Questionnaire, and technical reports.

Appendix D of this Handbook contains an example PEL document table of contents for a comprehensive PEL study. Many PEL studies may focus on a smaller number of steps, depending on the study objectives, and the resulting PEL document would include less information than shown in the example table of contents.

5.1 Documentation of Study Analysis and Decisions

Thorough documentation of the PEL study analysis and decisions made is crucial to the transition into NEPA. The body of the PEL document should provide detailed information from the PEL study analysis and decisions, in a format 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. Completed PEL documents can be found on CDOT's website. The I-225 Yosemite Street to I-25 PEL document, located at: <https://www.codot.gov/projects/i-225pel/september-2014-pel-report>, is an example of a recently completed PEL document.

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 4.2** of this Handbook). Analysis and documentation requirements should be agreed upon at the beginning of the study and incorporated into the scope of work.

The PEL document should include enough information to show that the PEL study fulfills the requirements set forth in 23 USC 168 (**Section 2.1** of this Handbook lists the requirements) for the adoption of planning products for future use in NEPA.

The PEL document should include documentation of the public involvement process so that the documentation can be carried forward into any future NEPA process. Basic documentation that should be collected for all public involvement activities includes information, such as the following:

- Advertisements used for activity/event
- Copies of handouts
- Documentation of displays or exhibits used
- Purpose for event/activity
- Number of public meetings and contact lists



“...any work from the planning process must have been documented and available for public review during the planning process. Such documentation should be in a form that can easily be appended to the NEPA document or incorporated by reference.”

FHWA and FTA, 2005a



- Locations, times, and dates of public meetings
- Meeting attendance (i.e., sign-in sheets)
- Meeting summaries (i.e., transcripts and meeting notes)

For additional information and guidance about public involvement documentation, refer to Section 7.4 of the *CDOT NEPA Manual* (CDOT, 2014).

5.2 FHWA PEL Questionnaire

The FHWA PEL Questionnaire is intended to provide documentation of the PEL study and should be included with the submittal of the PEL document (e.g., as part of executive summary, chapter, or appendix). As discussed in **Section 2.3** of this Handbook, PEL studies are not required to address all of the topics in the FHWA PEL Questionnaire, and only the relevant topics should be addressed and completed. The FHWA PEL Questionnaire should be considered a tool for organizing and following the PEL process, and project teams should use it as a guidance document, completing sections as the PEL study progresses rather than using it solely as an “after-the-fact” documentation tool. The FHWA PEL Questionnaire can also be useful for organizing and identifying documentation as a project transitions from planning to NEPA analysis.

5.3 Technical Reports

Technical reports prepared for a PEL study supplement the PEL document, are project-specific, and are identified based on the characteristics of the study area and input from stakeholders. Technical reports may include documents such as an Environmental Scan Report, Roadway Existing Conditions Report, or Alternatives Report.

When identifying technical reports needed for a PEL study, the project team evaluates which reports are necessary for PEL process decision documentation and those that will be necessary for future NEPA documentation.



A copy of the FHWA PEL Questionnaire is included in **Appendix A** and is available online at:

https://www.environment.fhwa.dot.gov/integ/pel_quest.asp



6.0 Transitioning from a PEL Study to NEPA for Federally Funded Projects

PEL studies are conducted to link transportation planning and the environmental process. For federally funded projects, the PEL study provides a foundation for NEPA scoping, informing the project purpose and need, defining the important issues to be addressed in the NEPA process, providing alternative recommendations, and providing context for how the project could be advanced. Although NEPA studies are often conducted without a prior PEL study, starting the NEPA process with information developed in a PEL study provides many benefits, including:

- Defined project purpose and need
- Reduced work effort
- Improved communication with stakeholders
- Earlier recognition of potential environmental issues
- Streamlined project delivery process

Completing a PEL study does not reduce the level of documentation required by NEPA. However, having a completed PEL study may clarify the project as well as provide information to more efficiently complete the NEPA process.

As discussed in **Chapter 1** of this Handbook, a PEL study can be used for different reasons, including planning analyses, discovering political needs and desires among multiple stakeholders, and prioritizing projects. For studies expected to move into the NEPA process in the future, the FHWA PEL Questionnaire provides a list of items to consider to assist with the transition to NEPA. Some PEL studies may respond to all of the FHWA PEL Questionnaire items, while others may respond to pieces of the FHWA PEL Questionnaire. The scope of work is developed based on the reasons for and the expected outcomes of the PEL study. Regardless of the PEL study's scope, the results of the study can provide useful information for use in the NEPA process.

The PEL study can inform all steps in the NEPA process, and PEL documentation can and should be referenced and formally incorporated into and/or appended to the NEPA documentation. The completion of a PEL study should reduce the time required for all classes of NEPA study, particularly CatEx's and EAs. PEL studies also provide information needed to inform the class of NEPA action by determining the possibility that the action (project or program) is likely to have significant impacts.

The adoption and use of a PEL study in the NEPA process is subject to a determination by FHWA, with the concurrence of other stakeholder agencies, that specific conditions have been met (listed in **Section 2.3** of this Handbook). One condition is that the PEL study must have been approved not later than 5 years prior to the date on which information is adopted in the NEPA review. **Section 6.2** through **Section 6.5** of this Handbook describe protocols for using PEL study data in NEPA studies based on the age of the data.

6.1 Scoping the NEPA Study Using PEL Study Information

NEPA studies that follow a PEL study should be scoped with an understanding of what PEL study information is available, and how it should be incorporated into the NEPA study. NEPA scoping is defined as an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. The PEL study likely accomplished and documented these issues, as well as issues requiring more detailed study in NEPA.

The FHWA PEL Questionnaire documents how PEL study information should be used during the NEPA process and should be reviewed by the NEPA project team prior to scoping the NEPA study. The FHWA PEL Questionnaire addresses the following items related to the typical steps in the NEPA process:



PEL studies can assist in scoping NEPA projects because they typically identify resources that do not require detailed analysis and provide recommendations for methodology and schedule for resources that do require analysis. This information may assist CDOT in determining whether the project is simple enough to use CDOT's streamlined NEPA document template for a CatEx or EA.

- Scoping
 - How the PEL methodology should be presented in NEPA
 - What steps should be taken with each agency during NEPA scoping
 - Whether any unresolved issues exist with the public, stakeholders, or agencies
 - How to use PEL study information when coordinating with agencies and the public during the NEPA process
 - Critical issues identified in the PEL study that need consideration in the NEPA process
- Purpose and Need
 - What steps will need to be taken during the NEPA process to convert the PEL study vision/purpose and need into a project-level purpose and need statement
- Alternatives
 - Which project alternatives should be brought forward into NEPA and why
- Environmental Analysis and Mitigation
 - Which resource issues need to be considered during NEPA
 - Which environmental resources were evaluated in the PEL study and why, and how environmental resource data will be supplemented during the NEPA process
 - Which environmental resources were not evaluated in the PEL study and why, and whether they should be reviewed during the NEPA process
 - Mitigation strategies that should be analyzed during NEPA

Once the project team has reviewed the FHWA PEL Questionnaire to determine what information is available to bring into the NEPA study and how, the NEPA study can be appropriately scoped to include any follow-on steps identified in the questionnaire. CDOT's Environmental Scoping Form is a recommended tool for identifying key resource and stakeholder considerations for the NEPA study. Additionally, the PEL study may document certain conditions or follow-on steps that will affect the NEPA schedule or budget. For example, if the PEL study identified the presence of resources with lengthy environmental clearance processes, these should be factored into the project schedule and budget. If the PEL study identified resources that need avoidance or minimization in the project design, this should be factored into the preliminary design scope. If the PEL study identified resources not present or of no concern for the project, the NEPA scoping process should confirm these conclusions and, if appropriate, eliminate or minimize the consideration of these resources in the NEPA process.



CDOT's Environmental Scoping Form is available online at:
<https://www.codot.gov/programs/environmental/nepa-program/cdot-nepa-tools>



The remaining sections in this chapter discuss the specifics of how the NEPA process can incorporate each of the PEL Study Steps discussed in **Section 4.5** of this Handbook.

6.2 Incorporating Purpose and Need

The purpose and need statement is an important component of the NEPA process. It helps articulate transportation needs that should be addressed and provides the basis to evaluate how well alternatives meet needs, in context of their environmental impacts and other costs and benefits. NEPA documentation typically includes several components for the purpose and need: the purpose for the project; the needs the project aims to address; identification of transportation system deficiencies; and the extent or logical termini of the project.

A NEPA study may incorporate purpose and need information exactly as it was developed in the PEL study if the PEL study was adopted within 5 years of the initiation of the NEPA study, or it may modify the purpose and need to capture localized issues that are inherent to the individual project undergoing NEPA review. For example, the purpose and need for a corridor PEL study is likely to be broader than that for an individual project within the corridor. In such a case, the NEPA study should develop a project-specific purpose and need that relates to the broader corridor purpose and need, and should explain the relationship between the two. The CEQ guidance on the use of programmatic NEPA reviews (CEQ, 2014) contains a relevant brief discussion on the relationship between a programmatic purpose and need, and a subsequent project-specific purpose and need. The CEQ guidance notes that project-specific purpose and need statements focus primarily on the issues relevant to the specific proposal without needing to duplicate the material prepared at the programmatic level.

In identifying a project's purpose, needs, and objectives, the PEL study usually identifies problems that need to be solved, such as safety concerns, traffic congestion, or infrastructure deficiencies. This information can be used in the NEPA process as supporting information if the PEL study was adopted within 5 years of the NEPA study.

If the NEPA study focuses on a specific project identified in a PEL action plan, the PEL study likely identified the project's logical termini and explained its independent utility. Logical termini and independent utility must be identified and justified in NEPA under FHWA regulations. PEL studies often provide information to support the identification of logical termini and independent utility that can be validated and incorporated into NEPA directly.

If the PEL study occurred more than 5 years prior to the NEPA study, the data used in the PEL study may no longer be a good representation of conditions in the study area. The information used to develop the purpose and need and logical termini must be reviewed to see if conditions or the planning context have changed. If conditions have not changed, the NEPA study may use the information from the PEL study and explain why that information is



“The purpose and need for a programmatic review will differ from the purpose and need for a project- or site-specific EA or EIS. The purpose and need for a [programmatic document] should be written to avoid eliminating reasonable alternatives and focused enough for the agency to conduct a rational analysis of the impacts and allow for the public to provide meaningful comment on the programmatic proposal.”

(CEQ, 2014)



still useful to the decision-making process. FHWA should be consulted on this decision.

6.3 Incorporating Transportation System Data

PEL studies describe the existing and future transportation system within the study area to 1) support the purpose and need and 2) provide a framework for alternatives development. The NEPA analysis must evaluate the transportation system to determine the alternatives' ability to address the project's purpose and need—which is tied heavily to transportation problems—and to define the impacts of the project on the transportation system.

When a NEPA study follows a PEL study, it can incorporate the PEL study data if the PEL study is less than 5 years old. Information about traffic volumes, travel patterns, or crash patterns, for example, may be important in understanding the operation of the existing and future transportation system. If such data are less than 5 years old, and no major changes have occurred since the data were gathered, the NEPA study can use these data directly in support of the project's purpose and need or alternatives and impact analyses. For example, a NEPA study for a project addressing congestion at an intersection could rely on level of service, turning movement, and queue length information from a recent PEL study to support the project purpose and need. Similarly, travel demand modeling outputs that show how a particular alternative would operate in the design year may be used during the NEPA study as part of the transportation impacts analysis, if the PEL study is less than 5 years old.

If a preceding PEL study is more than 5 years old by the time the NEPA study is approved, the information must be reviewed during the NEPA process to determine whether the PEL study results are still usable or new data need to be gathered, including updated travel demand modeling.

6.4 Incorporating Alternatives Analysis

Frequently, the goal of a PEL study alternatives analysis is to identify and refine the transportation improvements that could meet the project purpose and need or the vision for the study area. PEL studies may develop and refine alternatives, recommending one or more alternatives to be carried forward in the NEPA analysis, as well as eliminating alternatives that should not be considered further because they do not meet the purpose and need or are otherwise infeasible.

Different classes of NEPA actions require different levels of alternatives development and analysis (refer to the CDOT NEPA Manual [CDOT, 2014] for more information):

- CatEx's do not explicitly require an alternatives analysis, although any environmental impact avoidance and minimization alternatives must be discussed.



CatEx's do not require an alternatives analysis. EAs require consideration of an Action Alternative and No-Action Alternative only. EISs must evaluate a reasonable range of alternatives and a No-Action Alternative.



- EAs require consideration and analysis of an Action Alternative and No-Action Alternative only, and do not require an agency to analyze all reasonable alternatives. If other alternatives were considered, the EA must document why they were dismissed. EAs must also discuss any environmental impact avoidance and minimization alternatives.
- EISs must evaluate in detail a reasonable range of alternatives and the No-Action Alternative. An EIS must document why alternatives were dismissed from further consideration and must discuss any environmental impact avoidance and minimization alternatives. The *CDOT NEPA Manual* (CDOT, 2014) provides a step-by-step process for EIS alternatives analysis.

The alternatives identified in the PEL study often provide the framework for NEPA alternatives analysis and recommendations. The decision of which PEL study alternatives to advance into NEPA depends on the timing and class of NEPA documentation and the project context:

- If the NEPA process is a CatEx or EA and occurs within 5 years of the PEL study adoption, the NEPA project team can choose to proceed with **only one** of the recommended alternatives from the PEL study, even if additional alternatives were recommended. The NEPA document should provide background on the alternatives development and screening conducted during the PEL study to substantiate the reason for proceeding with only one action alternative (and the No-Action Alternative if it is an EA) in the NEPA process.
- If the subsequent NEPA process is a CatEx or EA and occurs within 5 years of the PEL study adoption, the NEPA project team may choose to analyze **more than one** action alternative. The project team may choose to advance more than one of the PEL study alternatives into the NEPA process for a variety of reasons. Sometimes no clear “preferred alternative” emerges from the PEL study, and further analysis in the NEPA process is warranted. Sometimes the NEPA scoping process identifies a new alternative not considered in the PEL process or demonstrates a lack of consensus around a single action alternative. Other times, considering more than one alternative would be prudent if any conditions have changed—such as implementation of nearby projects or changed environmental conditions—or if the project is controversial.
- If the subsequent NEPA process is a CatEx or EA, and the PEL study will be **more than 5 years old** when the NEPA study occurs, the PEL study alternatives analysis must be reviewed to determine whether the analysis and results are still usable or whether conditions have changed, before proceeding with a recommended alternative. If conditions have changed, additional alternatives may need to be considered. FHWA should be consulted about these decisions.
- If the subsequent NEPA document is an EIS, all reasonable alternatives, including all of the PEL alternatives, must be fully considered in the EIS regardless of how recently the PEL study was adopted.

The alternatives analysis process for each class of NEPA actions should follow the guidance in the *CDOT NEPA Manual* (CDOT, 2014). In cases where the PEL study already developed alternatives, set evaluation criteria, followed a NEPA-like alternatives evaluation and screening process, documented the results and recommendations, and coordinated with FHWA, all of these inputs can be used in the NEPA study. The results and recommendations from the PEL study can directly inform and substantially shorten the NEPA alternatives analysis process.

If the PEL study was adopted more than 5 years prior to the NEPA study, the NEPA study must review the PEL analysis for any class of NEPA document (CatEx, EA, or EIS). The NEPA study will need to assess all of the alternatives that met the project purpose and need, and confirm that conditions or policies and guidance that would affect the analysis and recommendations have not changed. For example, if an older PEL study recommended an interchange alternative that includes auxiliary lanes and ramp metering, and recommended eliminating an alternative that includes ramp metering only, the traffic inputs, other existing conditions surrounding the interchange, and CDOT’s current policies and practices regarding ramp metering would need to be revisited during the NEPA study to confirm the PEL study alternatives recommendations and analysis are still usable.



It is important to remember that although the PEL study may recommend alternatives for implementation or elimination, the final determination regarding eliminated and preferred alternatives is made during the NEPA process.

6.5 Incorporating Environmental Evaluation Data

Chapter 4 of this Handbook describes the environmental overview and evaluation conducted for PEL studies. The level of detail for PEL study environmental evaluations varies. Even the most detailed PEL studies do not address all of the requirements of NEPA and other environmental regulations, but rather aim to help focus future NEPA analysis on important issues and resources relevant to a specific project area and NEPA decision. The goal of the PEL evaluation is to identify environmental and other project constraints—such as project schedule and costs—that may affect future NEPA decisions; potential project impacts; and potential avoidance, minimization, and mitigation strategies or measures.

A PEL study environmental evaluation should balance the collection of environmental data with the timeframe for project development. In most cases, the PEL study should compile readily available data about environmental and social conditions, identify resources that may require avoidance or minimization of impacts during alternatives development, and recommend the likely level of analysis that will be required in the NEPA process, including identifying resources that have lengthy environmental clearance processes.

As with other project information, environmental data and analyses completed during the PEL study provide useful context to the NEPA process. While many environmental and social resources will require additional analysis during NEPA, the PEL study provides a “head start” to the NEPA process by (1) identifying the level of detailed analysis needed for each resource, and (2) providing recommendations for the methods and schedule for additional analyses that will be required during NEPA.

To assist with the transition to the NEPA process, the FHWA PEL Questionnaire requests documentation of the following:

- Existing conditions of all resources reviewed
- Level of detail and methodology of review
- Issues that need to be considered during NEPA, including potential resource impacts and mitigation strategies or requirements
- Supplemental data that will be needed during the NEPA process
- Documentation of resources that were not reviewed in the PEL study and why
- Whether non-reviewed resources need review under NEPA

This information feeds directly into the CDOT NEPA scoping process and can be included on the Environmental Scoping Form (online NEPA tools), which may be prepared to assist with internal and external NEPA scoping. If the PEL study was adopted within 5 years of the NEPA study, the resource information gathered during the PEL study can be incorporated into the NEPA study and supplemented as needed, following the guidance in the *CDOT NEPA Manual* (CDOT, 2014), to fulfill the requirements of NEPA and other environmental regulations. If the PEL study was adopted more than 5 years prior to the NEPA study, the PEL study’s resource information will need to be validated, updated, and supplemented during the NEPA process. The PEL study information can, nonetheless, help focus the NEPA analysis on those resources that are most likely to need avoidance, minimization, or mitigation and that may affect the project design, schedule, or budget.



6.6 Incorporating Input from Resource and Regulatory Agencies

NEPA requires the involvement of federal, state, and local agencies in the development of EISs and EAs. For CatEx's, the lead agency should identify any aspects of the project that might require coordination with other agencies. Other environmental laws are also addressed during the NEPA process, such as the Clean Water Act or the National Historic Preservation Act, and these laws require the involvement of regulatory agencies that enforce the laws.



Agency input during a PEL study provides information about issues of agency concern, input on mitigation strategies, and a head start on agency coordination. However PEL studies are planning-level studies and do not make any legally binding agreements with agencies.

Unlike under NEPA, agency involvement in a PEL study is voluntary on the part of the agency. As described in **Chapter 4** of this Handbook, the PEL study should invite participation by federal, state, and local agencies with jurisdiction by law or special expertise with issues related to the study area. These agencies may provide comments during the PEL study on environmental issues and potential project impacts; however, because a PEL study is a planning-level study, no legally binding agreements or decisions are made with any agencies.

The PEL study documentation and FHWA PEL Questionnaire will provide specific information about how resource and regulatory agency input should be used during the NEPA process, including:

- What steps should be taken with each agency during NEPA scoping
- Whether unresolved issues exist with any agencies
- How to use PEL study information when coordinating with agencies during the NEPA process
- Critical issues identified by agencies during the PEL study that need consideration in the NEPA process
- Agency input on mitigation strategies that should be analyzed during NEPA

Agency input during the PEL study allows NEPA project teams to more accurately scope the NEPA study, with an understanding of how and when the NEPA study should involve agencies and what issues of agency concern will need to be evaluated in more detail. Agency involvement during the PEL study also streamlines the NEPA study because agencies are familiar with the project and their concerns have been taken into account in project planning prior to starting preliminary design and NEPA. This can lead to enhanced decision making and more efficient solutions.

6.7 Incorporating Input from the Public

NEPA requires the involvement of the general public, including interested groups and individuals, in the development of EISs and EAs. For CatEx's, the lead agency should identify any aspects of the project that might require coordination with interested groups or individuals.



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PEL studies also should involve the public, with the goal of soliciting community input on steps such as the purpose and need statement, alternatives development and evaluation, environmental analysis, and mitigation strategies.

The PEL study documentation will provide specific information about when and how public input was obtained, how it helped shape the recommended alternative(s) and analysis, and how it should be used in NEPA. The FHWA PEL Questionnaire will provide information about how to use the public input in subsequent NEPA studies, including the following:

- Whether any unresolved issues exist for the public or stakeholders
- How to use PEL study information when coordinating with the public during the NEPA process
- Critical issues identified by the public that need to be considered in the NEPA process

This information about the PEL study public involvement process will enable the NEPA project team to more accurately scope the NEPA study, with an understanding of whether any outstanding or critical issues need to be considered or whether any particular types of outreach techniques should be continued from the PEL study to the NEPA study.



7.0 PEL Process Best Practices in Colorado

Table 7-1 presents best practices from recently conducted PEL studies. These best practices were identified by project team and validated by CDOT’s PEL Program Manager. Final PEL study documents provide more detail on the process and outcomes of the studies and are available on CDOT’s website.

All studies identified extensive stakeholder coordination as a best practice. Successful studies engaged key stakeholders, such as local agencies (cities and counties), and often regional councils of government and transit agencies. CDOT collaborated with key stakeholders to gather input on project visioning, obtain endorsement of the details for the transportation analysis, and define transportation needs. Stakeholder input was also important during the development and evaluation of alternatives. CDOT coordinated alternatives screening with stakeholders to prioritize improvements and reach consensus on recommendations. PEL studies provide a unique opportunity to engage stakeholders early in the project development process to understand community priorities, articulate a common vision for transportation improvements appropriate to the local context, and clarify the roles and responsibilities stakeholders have in implementing recommended improvements.

Table 7-1 PEL Best Practices in Colorado

PEL Study, Lead Agency, and Completion Date	Best Practices
Federal Boulevard, 5th Avenue to Howard Place Denver led 2009 completion	<ul style="list-style-type: none"> • Managed public expectations and did not overstate the project’s ability to meet expectations and address immediate needs. • Coordinated with adjacent projects, which led to cost savings and better outcomes. • During alternative development and analysis, emphasized “priority” environmental resources that could potentially affect future NEPA actions. • Included a cumulative impact analysis because the recommended alternative would be phased over a long period. • Used template EA on NEPA process, which required less documentation and a shorter timeframe (8 months) than typical.
US 50 West, Swallows Road to Baltimore Avenue, Pueblo CDOT led 2012 completion	<ul style="list-style-type: none"> • Comprehensively evaluated and screened alternatives and reached consensus on a recommended plan and preferred alternative for the corridor. • Created a robust travel demand model to examine alternative route capacity and conduct level of service failure analysis for different highway sections, helping prioritize improvements. • Identified initial improvements that would have independent utility and fit within immediately available funding (as of December 2015, two projects are underway, both with EA NEPA documents). • Established strong purpose and need, robust transportation modeling and analysis, environmental studies, and thorough alternatives screening during the PEL study that allowed future NEPA processes to move quickly into environmental surveys, impact analysis, and mitigation decisions. • Established a Memorandum of Agreement to enhance interagency coordination.
I-70 and Kipling Street CDOT led 2013 completion	<ul style="list-style-type: none"> • Identified lower cost incremental improvements to help reach a long-term solution. • Identified strategies to reduce throwaway work on interim projects. • Conducted extensive public outreach during the alternatives evaluation including community focus group meetings for area residents, businesses, and multimodal travel advocates, as well as individual meetings with property owners. Presented information in easy-to-digest format for the public. • Focused environmental analysis on key stakeholder concerns. Conducted a health impact assessment and analyzed land use and business impacts of the recommended alternatives. • Incorporated results of interviews with stakeholders into alternatives development, resulting in consensus on recommendations.



Table 7-1 PEL Best Practices in Colorado

PEL Study, Lead Agency, and Completion Date	Best Practices
SH 79, Bennett CDOT led 2013 completion	<ul style="list-style-type: none"> • Conducted thorough alternatives analysis. • The Recommended Alternative considered the full transportation network and identified a set of discrete long-term improvements that could be implemented by different agencies. • Independent utility analysis identified four separate actions for improvements; the first of these actions was a CatEx for a railroad grade separation. • State Highway corridor recommendations included identification of locations for full movement and potential future access, providing guidance for potential local development.
Vail Simba Run CDOT led 2013 completion	<ul style="list-style-type: none"> • When construction funding became available for the project, CDOT transitioned the PEL study into the NEPA process. There is no need to finish a PEL study if the funding becomes available that is adequate to address all of the desired improvements.
SH 7, US 287 to US 285 CDOT led 2014 completion	<ul style="list-style-type: none"> • Studied multimodal needs and involved RTD, helping identify local agencies' desire for additional transit. After the study, local agencies presented a transit plan to RTD based on the PEL recommendations. • Strong stakeholder facilitation and independent discussions with local agencies established a common vision for the corridor, addressed contentious issues, and achieved consensus on recommendations. • The study's recommendations provided a firm plan for transportation along the SH 7 corridor, allowing local agencies to effectively guide their future development plans.
I-25 North CDOT led 2014 completion	<ul style="list-style-type: none"> • Identified short-term improvements that were compatible with (and did not preclude) already-approved long-term improvements from the North I-25 EIS. • Provided a consistent message that short-term solutions were inadequate to fully address transportation needs, and the long-term solution required the EIS Preferred Alternative. This message helped manage expectations about what the study could accomplish through short-term recommendations. • Engaged FHWA in setting the study's goals, methodology, and terminology.
I-225, I-25 to Yosemite Street CDOT led 2014 completion	<ul style="list-style-type: none"> • Traffic and safety analysis clarified and changed the understanding of corridor needs, which directly informed the purpose and need and helped focus the project and alternatives analysis. • Engaged local agencies that would benefit from improvements in the study area, even though they had no jurisdiction in the study area. • Conducted effective telephone town hall and used the same phone communication system to advertise the in-person public meeting. • Conducted a three-level screening to screen 65 basic alternative components down to two recommended alternatives.
Wadsworth, 35th Ave to 46th Ave Wheat Ridge lead Estimated 2015 completion	<ul style="list-style-type: none"> • Strong engagement of CDOT/FHWA by local agency throughout study led to efficient study process. • Heavy stakeholder involvement: block-by-block meetings, three public meetings, and property owner coordination.

The PEL studies shown in **Table 7.1** led to the collection of a wide variety of lessons learned, which will help guide implementation of future studies. As detailed further in the following list, lessons learned from project teams were grouped into categories related to stakeholder communication, traffic modeling, FHWA coordination, and transitioning to NEPA. In addition to these items, project teams noted that strong project management from both CDOT and the consultant is needed to keep studies focused and moving forward.



- Scoping the PEL study
 - PEL studies should not conduct so much data gathering and analysis that they become a NEPA study in all but name. PEL studies are meant to improve decision making at a broad level and to inform future actions. PEL studies do not need to be as detailed as NEPA, and keeping them at a higher level of analysis will reduce duplication of effort in later phases.
- Communication with stakeholders
 - Studies should focus on quality of communication between the project team and stakeholders, particularly for important messages. CDOT and the project team should provide clear messaging instructions to ensure that a consistent message is presented to stakeholders. When messaging to stakeholders is not consistent, friction and misunderstandings may occur.
 - CDOT and the project team should clearly state the desired goals and outcomes of the study to local agencies, and obtain local agency agreement with these goals early in the study. The desired goals and outcomes of the study should then be reiterated to the local agencies at each major milestone so everyone remains in agreement and aware of the study's focus. Conducting a chartering session at the start of the study and a visioning workshop early in the process can set the stage for consensus building and may help keep agencies and CDOT better focused on the same outcomes.
 - PEL studies are successful at extensive coordination with stakeholders, but sometimes CDOT and the project team accommodate stakeholder desires unrelated to the study's focus, which can detract from the study's central purpose and delay progress; these tangential issues can also inflate the scope of the study. CDOT and the project team should work to keep stakeholder discussions focused on issues related to the study's central goals.
- Travel demand and traffic modeling
 - Travel demand and traffic model details should be discussed with and agreed upon by FHWA as early as possible in the study, with early stakeholder endorsement of these details. The following items should be agreed upon by CDOT and FHWA: existing and future years for the traffic model; tools (software); techniques (meso, micro, macro); and measures of effectiveness. Documenting these details in a white paper to FHWA is helpful.
 - Because the alternatives analysis requires measures of effectiveness related to the study's goals and objectives, it is critical that studies select modeling tools that can quantify the appropriate measures for the study.
 - PEL studies should consider providing a single traffic analysis report, rather than dividing the traffic analysis between the Existing Conditions Report and the PEL Document (with traffic forecasts and alternatives evaluation). A single traffic report would allow traffic analysis to be appended directly to 1601 Interchange Access Requests and NEPA documents.
 - Level of failure analysis based on interim traffic projections (i.e., between existing conditions and design year) can be very helpful for prioritizing projects and funding.
- Coordination with FHWA
 - The project team can help FHWA provide timely reviews by including an executive summary of reports that highlight key points needing FHWA attention.
 - Determine early in the study which specific activities within the FHWA Coordination Points will involve FHWA, and obtain agreement on these activities from both FHWA and key project team members.
 - Highlight and clarify the relationship with other federal projects in the PEL study area.



➤ Design and Recommendations

- Discussing conceptual alternative designs with stakeholders prior to screening helps keep CDOT and stakeholders moving forward together. Stakeholder input improves the ability of the alternatives to meet both stakeholder and transportation needs.
- Provide cost estimates in a format that can be easily adapted to different packaging scenarios. For example, providing costs for individual alternative components allows small projects to be mixed and matched fairly easily in different packages.

➤ Transitioning to NEPA

- Local agencies should revisit the intended class of NEPA action with CDOT prior to developing the scope of work for a follow-on NEPA process. Although the PEL study may have identified certain classes of NEPA action for different improvements within the PEL study's recommendation, the class of action could change if the proposed action or project limits change. Discussing the class of action with CDOT can allow local agencies to properly scope the projects before moving forward with the NEPA process.
- Be mindful of the time between the PEL study and transition into the NEPA process to ensure that PEL studies and their analyses do not become stale (generally, 5 years or less between PEL and NEPA processes).
- Do not force a single recommendation into the NEPA phase if more than one alternative can meet the purpose and need.
- Because corridor PEL studies are often made up of smaller projects and not one large improvement, creating “fact sheets” for each project could be a valuable tool. These fact sheets would have the conceptual design, overall project goal, how it meets the purpose and need, any necessary permitting/environmental documentation, estimated costs, and a brief summary of other alternatives considered. These fact sheets would provide local agencies (or CDOT) a quick reference for projects to advance, without having to search through the PEL documentation.



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APPENDIX A: FHWA PEL QUESTIONNAIRE

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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 screen process; alternative screening 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. 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?



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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.

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APPENDIX B: EXAMPLE PEL SCOPE OF WORK

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SCOPE OF WORK BASIC CONTRACT

CONTRACT TYPE [CHECK ONE]

Specific Rate of Pay

Cost Plus Fixed Fee

Lump Sum

CONTRACT DATE: 01/15/2014

PROJECT NUMBER: NHPP 0063-047

PROJECT LOCATION: US 6C Clifton

PROJECT CODE: 19770

THE COMPLETE SCOPE OF WORK INCLUDES THIS DOCUMENT (ATTACHED TO THE CONTRACT FOR CONSULTANT SERVICES) AND, IF REFERENCED,

- SECTION 1 PROJECT SPECIFIC INFORMATION
 - SECTION 2 PROJECT MANAGEMENT AND COORDINATION
 - SECTION 3 EXISTING FEATURES
 - SECTION 4 REFERENCE ITEMS NEEDED BY THE CONSULTANT
 - SECTION 5 GENERAL INFORMATION
 - SECTION 6 PROJECT INITIATION AND CONTINUING REQUIREMENTS
 - SECTION 7 PEL STUDY WORK TASK DESCRIPTIONS
 - SECTION 8 CONTRACT CONCLUSION (CHECKLIST)
- APPENDICES

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SECTION 1

PROJECT SPECIFIC INFORMATION

1 PROJECT BACKGROUND

The current area of interest on the US 6C corridor in Clifton begins at the intersection of I-70B (MP 37.161) and ends just east of 33 Rd. (MP 38.272). This corridor serves as a multi-modal facility, provides commuter access, and access to an elementary school, the U.S. Post Office and other local businesses. This section of US 6C is a congested urban corridor through the unincorporated neighborhood of Clifton and serves as their main street. Based on historic and projected population and employment levels, passenger traffic volumes are expected to increase significantly while freight volume will remain constant. In 2007, Mesa County developed a redevelopment plan for the Clifton area including the conceptual designs for improvements to this corridor.

The Colorado Department of Transportation (CDOT) will hire a consultant to provide an improved understanding of the corridor. The selected consultant team (hereafter referred to as the Consultant) shall evaluate the existing and future operating conditions and features of the corridor. In this project, the scope of services to be provided by the Consultant shall produce a Planning Environmental Linkage (PEL) Report with the goal of identifying existing conditions, anticipated problem areas, and developing a range of improvements to reduce congestion, access control and improve operations and safety of the corridor for all modes of transportation and pedestrians. The results of these efforts may ultimately be used to prepare National Environmental Policy Act (NEPA) studies and final design.

2 PROJECT GOALS

This project is intended to examine the need for the following improvements to the corridor, as well as producing design and funding, scheduling and phasing recommendations to achieve them:

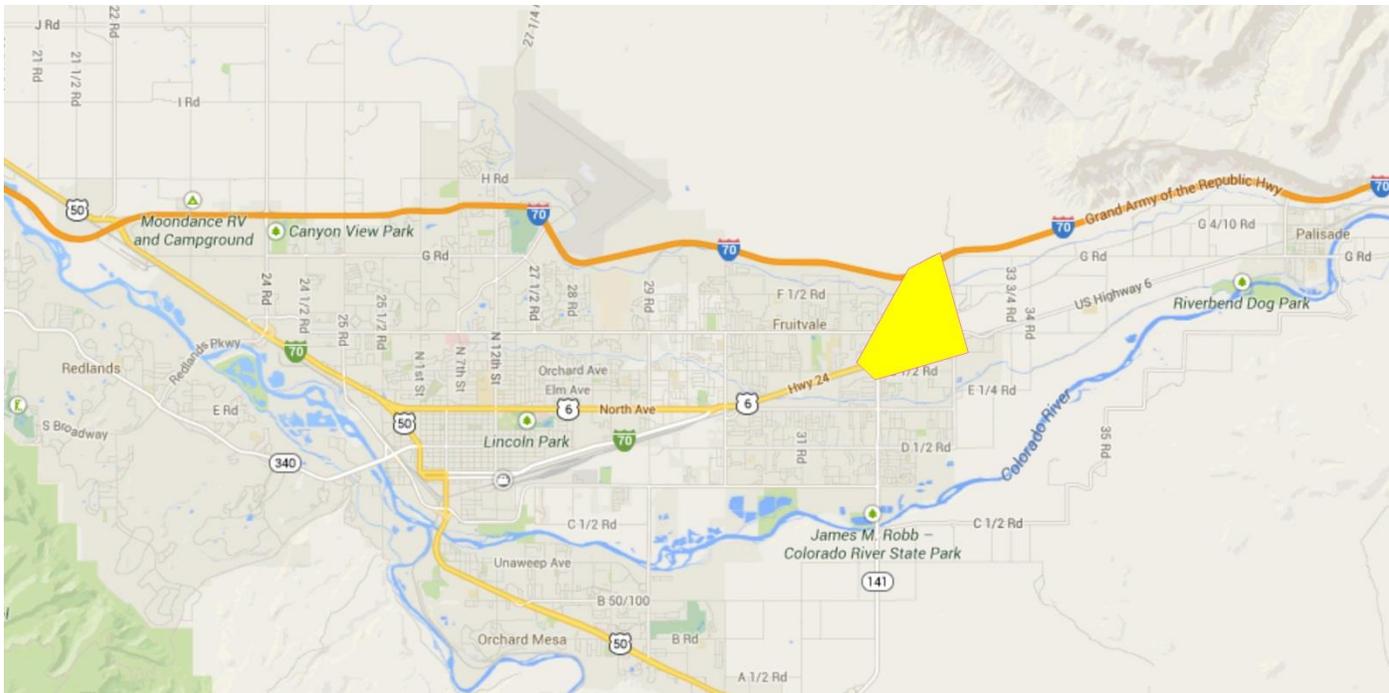
- A. Improve mobility and reduce congestion
- B. Improve intersections
- C. Provide bicycle and pedestrian facilities
- D. Consolidate and manage access

The objective of this project is to work with stakeholders to analyze and develop a range of improvements to reduce congestion and improve operational performance and safety throughout the corridor. The project will assist CDOT, public agencies, and resource agencies in identifying issues of importance to each respective agency.

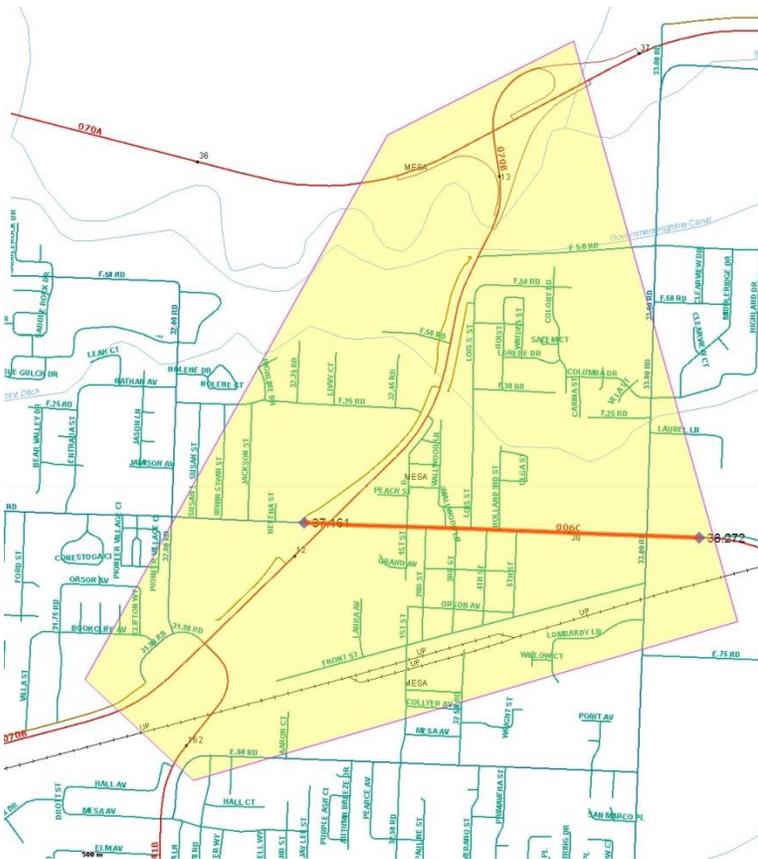
The Consultant will produce documents and deliverables in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix A to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes.

3 PLANNED IMPROVEMENTS

This project is located on US 6C (MP 37.161 – 38.272) in Mesa County. The approximate area of interest is shown in the image below.



Grand Junction Area Map with area of interest highlighted.



Area of interest detail.

4 WORK DURATION

The time period for the work described in this scope is approximately 365 calendar days.

5 CONSULTANT RESPONSIBILITY AND DUTIES

The Consultant is responsible for conducting project coordination, agency coordination, public participation, feasibility study conceptual design and alternatives analysis, environmental and design data collection and analysis as described in the following sections.

6 WORK PRODUCT

The work in the scope of services for this project will be contracted on an individual Task Order basis, as needed and if needed as determined by the Department. The Department reserves the right to, at its sole discretion, decide to not issue task orders for any part of the work contained in this scope of services. The Consultant work products may include:

A. Reports

- a Existing Transportation Conditions Report – Documentation of existing issues and constraints related to traffic operations and geometrics, including summary of roadway characteristics (lanes, access, etc.), traffic operations, substandard features (sight distance, shoulders, sidewalk width, etc.) if any, and traffic safety.
- b Property Ownership Report – Plan sheets with property lines and ownership information (as available from County assessor) shown on an aerial background as information for potential property impacts.
- c Environmental Scan Report – Documentation of existing environmental resources in the study area with identification of critical environmental issues and next steps for environmental analysis in future NEPA processes.
- d Logical Termini Memo – Documentation of recommendation for logical termini and proposed study area boundary for submittal to FHWA for approval.
- e Purpose and Need Statement – Written statement of purpose and need developed for the project.
- f Final Alternatives Report – Documentation of the development, screening, and analysis process, including evaluation criteria, decision matrices, and concerns, requirements, and estimated cost for the recommended alternative(s).
- g Traffic Analysis Report – Report of travel forecasting for the project (assumptions, methods, and results) and traffic operations for the recommended alternative(s).
- h Planning Environmental Linkage Report – Technical summary of the engineering and environmental considerations, assumptions, analysis methodologies, and graphic displays of the recommended alternative(s).

B. Project Coordination

C. Schedules

D. Meeting Minutes

Detailed work product requirements are described in the following sections. All work required to complete this Scope of Work requires the use of English Units.

7 WORK PRODUCT COMPLETION

All submittals must be accepted by the CDOT Contract Administrator or designee.

8 ADDITIONAL PROJECT INFORMATION

Additional information regarding this project is included in the following documents:

- A. CDOT accident history data
- B. Traffic Data
- C. As-constructed roadway, structure, and existing ROW plans
- D. Pavement Design Records

Copies of these documents may be obtained from CDOT Printing and Visual communications Center, Phone no. 303-757-9214, Room 117, 4201 East Arkansas Avenue, Denver, Colorado 80222. A moderate fee, determined by document size, will be charged. An additional charge will be added for requests by mail or for billing. Please provide a notice of two working days prior to obtaining the document(s) in person.

9 SCOPE OF WORK ORGANIZATION

This draft scope of work has been reviewed by the Department and reflects a plan of approach based on the known goals. One factor determining the selection of a consultant is the ability of that consultant to analyze the project goals, evaluate the work elements, and formulate a work plan. This process may produce new approaches or modification to the project work elements. Because of that, all consultants should be aware that the Final Scope of Work for a project will be produced with input from the selected Consultant.

SECTION 2
PROJECT MANAGEMENT AND COORDINATION

1 CDOT CONTACT

The Contract Administrator for this project is: David Eller, Region 3 Regional Transportation Director.

Active day-to-day administration of the contract will be delegated to:

- A. Name: Rob Beck
- B. Title: Resident Engineer
- C. Address: 606 S. 9th Street Grand Junction, Colorado 81501
- D. Telephone: (970) 683-6351

2 PROJECT COORDINATION

Coordination will be required with the following:

- A. Unincorporated community of Clifton
- B. Mesa County
- C. Grand Valley Transit (GVT)
- D. Grand Valley Metropolitan Planning Organization (GVMPO)
- E. Federal Highway Administration (FHWA)
- F. Utilities
- G. State and Federal Resource Agencies

The consultant should anticipate that a design which affects an agency will have to be accepted by that agency prior to its acceptance by the Colorado Department of Transportation. Submittals to affected agencies will be coordinated with CDOT.

SECTION 3

EXISTING FEATURES

1 STRUCTURES

CDOT bridge structures H-03-BN and H-03-BW over the BN railroad are in the vicinity of the US 6C area of interest. Other structures associated with the I-70 interchange north of the area of interest include H-03-BI, H-03-BG, H-03-BD and H-03-BG.

2 UTILITIES

Contact Utility Notification Center of Colorado (U.N.C.C.) at 1-800-922-1987

3 IRRIGATION DITCHES

Contact Irrigation Ditch Company.

4 RAILROADS

Contact UPRR.

Note: The above is a list of the known features in the area. It should not be considered as complete. The Consultant should be alert to the existence of other possible conflicts.

SECTION 4

REFERENCE ITEMS NEEDED BY THE CONSULTANT

1 CURRENT CDOT MANUALS, SPECIFICATIONS, STANDARDS, ETC.

The consultant shall obtain and utilize the most recent CDOT adopted references including standards and specifications, manuals and software, electronic files of applicable standards, and all CDOT forms specified in this document or as directed by the CDOT/PM. A list of general reference material is provided in Appendix A.

SECTION 5

GENERAL INFORMATION

1 NOTICE TO PROCEED

Work will not commence until the written Notice-to-Proceed is issued by the State with certification from the Consultant that the work will be completed within the allotted time. Work may be required, night or day, on weekends, on holidays, or on split shifts. CDOT must concur in time lost reports prior to the time lost delays being subtracted from time charges. Subject to CDOT prior approval the time charged may exclude the time lost for:

- A. Reviews and Approvals.
- B. Response and Direction

2 PROJECT COORDINATION

- A. Routine Working Contact

The routine working contact will be between the CDOT Project Manager (CDOT/PM) and the Consultant Project Manager (C/PM) as defined in Appendix B.

- B. Project Manager Requirements

Each Project Manager will provide the others with the following:

- a. A written synopsis or copy of their respective contacts (both by telephone and in person) with others.
- b. Copies of pertinent written communications.

3 ROUTINE REPORTING AND BILLING

The Consultant will provide the following on a routine basis:

- A. Coordination

Coordination of all contract activities by the C/PM

- B. Periodic Reports and Billings

The periodic reports and billings required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts).

- C. Minutes of all Meetings:

The minutes will be completed and provided to the CDOT/PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item", the party responsible for accomplishing it, and the proposed completion date.

- D. General Reports and Submittals

In general, all reports and submittals must be approved by CDOT prior to their content being utilized in follow-up work effort.

4 PERSONNEL QUALIFICATIONS

The Consultant Project Manager (C/PM) must be approved by the CDOT Contract Administrator. Certain tasks are required to be done by a Licensed Professional Engineer (PE) or a Professional Land Surveyor (PLS) who is registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors, National Institute for Certification in Engineering Technology (NICET). Other certifications may be required for project inspectors and testers.

5 CDOT COMPUTER/SOFTWARE INFORMATION

The consultant shall utilize the most recent CDOT adopted software. The primary software used by CDOT is as follows:

A. Earthwork	InRoads
B. Drafting/CADD	InRoads and Microstation with CDOT's formatting configurations and standards
C. Survey	CDOT Inroads TMOSS
D. Geometry	CDOT COGO (Coordinate Geometry)
E. Bridge	CDOT Staff Bridge software shall be used in either design or design check
F. Estimating	Transport (an AASHTO sponsored software)
G. Specifications	Microsoft Word
H. Traffic Operations	VISSIM and DYNASMART
I. Travel Demand Model	TransCAD
J. Traffic Signals	Synchro/Sim Traffic
K. Hydraulics	Hydrologic Engineering Center's River Analysis System (HEC-RAS)
L. Pavement Design	DARWin (AASHTO)
M. Scheduling	Microsoft Project
N. GIS	ESRI, ArcMap geodatabases (Projection: UTM NAD 83, Zone 13)
O. Noise Modeling	TNM v2.5
P. Misc	Microsoft Word, Excel, Power Point
Q. Reports	Adobe Acrobat 7.0 Professional, Microsoft Word

6 COMPUTER DATA COMPATIBILITY

The data format CDOT presently utilizes which Consultants shall be required to use for submitting roadway design data is: Inroads.

The data format used by the Consultant to submit surveying and photogrammetric data shall be as determined by the CDOT/PM in coordination with the respective Region PLS. The data format for submitting design computer files shall be compatible with the latest version of the adopted CDOT program. The Consultant shall immediately notify the CDOT/PM if the firm is unable to produce the desired format for any reason and cease work until the problem is resolved. Refer to Table 1, Submittals, for additional information regarding the InRoads and TMOSS formats and the acceptable transmittal media.

7 PROJECT DESIGN DATA AND STANDARDS

A. General:

Appendix A is a list of technical references applicable to CDOT work. The consultant is responsible for ensuring compliance with the latest CDOT adopted version of the listed references. Conflicts in criteria shall be resolved by the CDOT/PM.

SECTION 6
PROJECT INITIATION AND CONTINUING REQUIREMENTS

This list establishes the consultant’s individual task responsibility. The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, 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 Consultant should review this entire section to identify applicable material. Contact the Colorado Department of Transportation/Project Manager (CDOT/PM) if clarification is required (see Section 2.1, CDOT Contact).

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/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 plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator (see Section 2.1, CDOT Contact) before starting the work.

	<u>CDOT/ Other</u>	<u>Consultant</u>
1 <u>PROJECT INITIATION AND CONTINUING REQUIREMENTS</u>		
A. Initial Project Meeting	<u> X </u>	<u> X </u>
<p>An initial project kick-off meeting will be held, coordinated by the Consultant, and conducted by CDOT. The meeting will review the Project Management Plan, project scope, schedule, key milestones, and project study area boundary. The meeting may include an on-site inspection to familiarize the entire project team with the character and conditions of the area. The Consultant shall develop an invitation list in coordination with CDOT, send notices with a draft agenda, and provide meeting minutes to all those invited. The Consultant will facilitate a chartering session among CDOT, Mesa County, and Consultant team members to establish the project charter, including defining the team's purpose and establish critical success factors, goals, roles and responsibilities, operating guidelines, interpersonal behaviors, and other elements. The charter will be a written document that is signed by all participants.</p>		
B. Project Management Plan	<u> </u>	<u> X </u>
<p>The Consultant shall submit a plan for managing the project, including work assignments, project schedule, document quality assurance program, administrative record, document and agency reviews, and other project needs.</p>		
C. Resource Review	<u> X </u>	<u> X </u>
<p>Consultant shall review relevant standards and specifications and document environmental requirements applicable to the project. This task shall include two meetings, one with CDOT and one with Mesa County representatives to discuss the initial work efforts of the project.</p>		
D. Project Study Area Boundary	<u> X </u>	<u> X </u>
<p>Preliminary project logical termini will be recommended by the consultant. The consultant will perform necessary research and data collection to propose a study area</p>		

boundary and logical termini for use in future NEPA scoping. The consultant will coordinate with CDOT, Mesa County staff for recommendation to FHWA for approval.

E. Project Schedule _____ X

The initial project schedule, to be prepared by the Consultant, will be reviewed with the CDOT Project Manager and project team, and refined to provide detail as requested. Modifications shall be made for acceptance by CDOT. The schedule will be reviewed and discussed at regular intervals and updated as necessary.

F. Obtain Necessary Trespass Rights and Permits _____ X

Some activities may require work on land not controlled by CDOT. In such cases CDOT shall obtain the necessary written permission to enter the premises. CDOT Form 730 may be used for this purpose. The Consultant will assist CDOT with work efforts consisting of the following activities:

a. Consultant shall develop ownership lists with names and telephone numbers of persons to contact for Right-of-Entry (ROE). Prepare initial mailing list from this effort.

b. CDOT shall prepare ROEs for 1st tier properties for field work and other activities as they arise.

c. CDOT shall track status of ROEs, when sent, when returned, approved or rejected, conditions, other interested parties and tenants, etc. The ROEs shall apply to CDOT and Consultant personnel.

d. Consultant shall obtain permits, as required, for fieldwork activities.

G. Plan and arrange Required Traffic Control _____ X

Consultant field activities that interfere with traffic operations within existing roadways will require control of traffic. The Consultant will plan and provide any required traffic control for the survey, testing, or the design process. Traffic control operations will be in accordance with the MUTCD. The proposed Method for Handling Traffic (MHT) must be submitted to the CDOT/PM. Also, certification of the Traffic Control Supervisor as a Worksite Traffic Supervisor by the American Traffic Safety Services Association (ATSSA) or as a TCS (Traffic Control Supervisor) by the Colorado Contractors Association (CCA) shall be required.

The Consultant will work directly with CDOT personnel to prepare and submit appropriate basic traffic control plans for work tasks which may be required and are within traveled roadway to CDOT for approval. Any work within Mesa County's right of way will require a permit and traffic control plan approved in advance by CDOT.

H. Progress Meetings _____ X

CDOT and the Consultant will meet at regular intervals, to coordinate and track work efforts, progress and issues, and to work towards resolution of potential problems. The Consultant Project Manager shall provide a status report of the project schedule and budget at regular intervals. The Consultant Project Manager shall conduct the meetings, send meeting notices, agendas and handout materials, and prepare and distribute meeting minutes. The minutes of each meeting shall track and report progress on action items identified during previous meetings. Team meetings will be organized as follows:

a. Project Team Meetings:

Project Team consists of CDOT and Consultant Project Managers. Team will meet on a bi-weekly basis to review status of and manage the overall project progress, schedule, and work plan. Team meetings will be used to conduct primary evaluations and decisions. Some of these meetings may be held via teleconference.

b. Technical Team Meetings:

Technical Team consists of CDOT, Mesa County, GVMPO, GVT, FHWA, and Consultant technical task leaders responsible for coordination of technical information as needed. Team will meet on a 6-week basis to review status and progress of project technical materials.

I. Public Involvement Coordination

X X

CDOT will assist the Consultant in organizing all Stakeholder meetings and Public Meetings and a comprehensive public outreach plan. The Consultant is responsible for creating and providing all materials for these meetings. The estimated number of meetings is identified below for budgeting purposes. In addition to this, it is anticipated that numerous other contacts will need to be made with all of the public agency stakeholders, both at the staff level and the elected official level, to communicate and negotiate the stakeholders' concerns about specific problems and visions for the corridor.

The Consultant shall provide the presentation aids, and help conduct the following meetings:

a. General Public Meeting (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the public, add to the “contact list”, and gather information regarding local concerns. The meetings may also take the form of a work session or workshop with the affected parties. Three general public meetings are anticipated with one of them dedicated to public comment prior to delivering the final report.

b. Resource Agency Meetings (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the resource agencies, add to the “contact list”, and gather information regarding resources of concern. The meetings may also take the form of a work session or workshop with the resource agencies. It is estimated that two meetings with each resource agency are anticipated. These may be individual meetings or meeting of grouped resource agencies, as appropriate. Some of these meetings may be held via teleconference.

c. Community Resource Panel Meetings (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings will focus on groups directly affected by the project work to identify likely impacts and discuss possible mitigation or resolution techniques. It is estimated that two meetings each will be held with each of affected groups. The Community Resource Panel meetings will also be used to obtain feedback on communication tactics to ensure they are effective. Up to a total of six Community Resource Panel meetings are anticipated as noted above.

d. Informal Stakeholder Briefings (one-on-one)

These one-on-one meetings will be held with individuals representing public agencies, property and business owners, or others directly affected by the project work to identify likely impacts and discuss possible mitigation or resolution techniques. Some meetings may occur in conjunction with regularly scheduled meetings of these groups. Up to twenty one-on-one meetings are anticipated for this project.

J. Communication Aids

_____ X

a. Newsletter/Announcement/Mailings

Project announcements and newsletters will be published and distributed via mail or email to those on the contact list by the consultant. Up to four announcements are assumed during the project, distributed to a contact list assumed to contain up to 2,000 contacts.

b. Website

The consultant will coordinate with CDOT to provide content and information for CDOT to post to a project specific website, initiated and maintained by CDOT. The website will post project information from the public meetings, press releases and other public information, and provide contact information to facilitate comments and questions to CDOT and consultant representatives.

K. Project Management

X X

The Consultant will coordinate the work tasks being accomplished by all subconsultants to ensure project work completion on schedule.

The Consultant will provide the following on a routine basis:

a. Coordination of contract activities.

b. Periodic reports and billings.

c. Minutes of all Meetings.

The minutes will be completed and will be provided to the CDOT PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the "Action Item," the agency responsible for accomplishing it, and the proposed completion date.

d. Coordination with subconsultant activities, processing of invoices, review of status reports and products.

SECTION 7

PEL STUDY WORK TASK DESCRIPTIONS

The Study will be conducted in accordance with the Statewide and Metropolitan Planning Regulation 23 CFR 450. The provisions linking planning and NEPA presented in Section .318 and Appendix A of 23 CFR 450 are to be followed. The findings of the PEL Study will establish the Purpose and Need, subsequent phase study area and reasonable alternatives, logical termini and independent utility, and programming priorities/timeframes/funding to be used in updating transportation plans and transportation improvement programs (TIPs).

Based on the initial traffic data collection, travel demand forecasting, and traffic operational analyses, the consultant will identify traffic problem areas and determine the effects to the surrounding roadway network and intersections. This analysis will consider traffic volumes, travel/access patterns, LOS, delays, travel times, and speeds in neighborhoods and other areas of anticipated traffic congestion. The Consultant will coordinate this work with other studies in the immediate area.

The Study will include development and evaluation of alternatives based on a consideration of Purpose and Need, geometric, planning and environmental factors, the location of communities and other developed areas, traffic and public and agency input. PEL Study alternatives will initially be developed based on secondary source or available environmental and community data, and will be refined through agency and public input and other on-going studies. Environmental and community data will be updated for the refined corridors through photo interpretation and selected ground-truthing. The intent of the PEL Study analysis is not to identify impacts, but rather to identify potential roadblocks for those PEL Study alternatives which provide the best balance in meeting the Purpose and Need and avoiding/minimizing the potential to affect resources during subsequent study phases.

The Study will be developed and documented in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix X to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes. All final deliverables identified in this contract will be of such quality that they could be incorporated directly or by reference into these NEPA documents. The study process will comply with the requirements of the Moving Ahead for Progress in the 21st Century Act (P.L. 112-141), (MAP-21).

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	<u>CDOT/ Other</u>	<u>Consultant</u>
1 <u>EXISTING CONDITIONS REPORT</u>		
A. Evaluation of Existing Roadway Conditions		
a. Acquire available construction As-Built files, records, and information for the following:	_____	_____X_____
i. Accident records		

ii	Freeway and street geometry		
iii	Drainage and floodplain conditions		
iv	Structure conditions		
v	Lighting		
vi	Traffic signals		
vii	Pedestrian and bike facilities		
viii	Transit (bus stop) facilities		
ix	School walking surveys?		
b.	Base Mapping	_____	_____X_____
	Design will be based on available base mapping provided by CDOT. The Consultant will obtain available aerial photography and digital topographic mapping for the study area from available sources and compile information for use with conceptual design tasks and identification of potential issues.		
c.	Property Ownership Summary Report	_____	_____X_____
	Property lines and ownership will be assembled from assessor’s information. A set of property owner maps will be prepared based on County Assessor tax records that identify ownerships within the study area.		
	The existing US 6C right of way lines and the property boundary lines within the study area will be ascertained from information available at the Mesa County Assessors offices and the Clerk and Records offices. No title research is included in this Scope of Services.		
	The property lines will be referenced into the existing aerial photography and the plan sheets.		
d.	Existing Environmental Conditions	_____	_____X_____
	Conduct an environmental scan and list of critical environmental issues within the corridor that include the following tasks:		
	• Map environmental resources and prepare a list of environmental issues.		
	Include, at a minimum:		
	– Floodways and 100-year flood plain boundaries		
	– Likely locations of wetlands		
	– Known Archaeological and Paleontological sites		
	– Mines		
	– Hazardous waste sites		
	– Community or public wells		
	– Historical buildings, sites, and districts		
	– Rivers and lakes (identifying any designated wild and scenic rivers)		
	– State and national forests		
	– Wildlife reserves		
	– Critical wildlife habitat		
	– Threatened and endangered species (locations or likely presence)		

- Public parks
- Prime agricultural land
- Barrier effect
- Pedestrian and bicycle access
- Noise
- Air Quality
- Neighborhood/business displacement
- Identify those areas expected to require further analysis for NEPA purposes.
- Prepare an environmental scan report for CDOT, resource agency, and public review.
- Identify and describe any features that may require context sensitivity.

Expected Products (Results)

- An environmental scan map of key socioeconomic and environmental resources;
- A list of environmental issues within the corridor, and identification of areas that require further analysis.
- A report summarizing the results of the research of land uses and other characteristics of the region. The report should include:
 - Community profile, including population, growth trends, and employment trends, for use in future forecasts
 - Current land uses
 - Planned land uses incorporating both Mesa County’s comprehensive plans, urban renewal plans, TOD plans, etc. including the 2040 Regional Transportation Plan, Clifton Pedestrian Circulation Study, Clifton/Fruitvale Community Plan, Clifton Old Town Mixed-use District and Design Standards.
 - Historical and cultural buildings and site
 - Potential adverse cumulative effects within the regional setting

An Environmental Scan Report will examine and document existing environmental resource conditions in the study area. The Environmental Scan document will summarize findings of the environmental data collection and critical environmental issues, including maps, figures and tables as appropriate. “Next steps” for environmental analysis in future NEPA processes will be identified.

B. Traffic Study

a Traffic data collection

The Consultant shall obtain current traffic counts for the project limits and surrounding roadway network impacted by the project to evaluate the existing traffic operations. Available traffic data shall be compiled from various state and municipal sources including CDOT automated traffic recorder locations.

The Consultant shall conduct a traffic count program to facilitate level of service evaluation at the US 6C termini and at relevant strategic major arterial intersections. Major arterial intersection locations to be evaluated are to be determined by the Consultant in coordination with CDOT and Mesa County. Daily vehicle classification counts will be collected at relevant strategic locations throughout the corridor, and AM and PM peak hour turning movement counts will be collected at relevant strategic local intersections on two consecutive weekdays. Classification count and intersection turning movement count locations are to be determined by the Consultant in coordination with CDOT, and Mesa County. Daily traffic counts on mainline US 6C, and at the I-70B Intersection.

To assist in the evaluation of potential traffic impacts, up to eight 48-hour speed/volume counts may be conducted within the study area during the alternatives development and analysis tasks.

The Consultant shall utilize information from the Corridor Existing Condition Traffic Analysis Report prepared by CDOT R3 Traffic.

The Study shall include alternate routes, accident history, and congestion, effects of improvement on the existing interstate and highway system, effects on the adjacent improvements, economic development impact, and local commitment to improving local roadways.

b Travel demand forecasting

X

Travel demand modeling shall begin at the same time as data collection. The consultant will utilize the adopted 2040 regional travel demand model maintained by the GVMPO; this model is based on TransCAD version 6.0. As necessary, the consultant will develop a sub-area model specific to the US 6C corridor. The consultant shall be responsible for performing "reasonableness" checks on information developed and derived from use of the GVMPO model. The primary product of this work will be 2040 travel demand forecasts approved for study use by GVMPO. These forecasts will be used to develop 2035 traffic volumes on U.S. 6C and other major and other major roadways within the study area, as well as turning movements at signalized and unsignalized intersections. The Consultant shall use the approved GVMPO data sets and road network to ensure that the traffic analysis is compatible with the NEPA process.

c Traffic operations

X

Traffic operational analysis will include an evaluation of the existing conditions as well as a 2040 analysis for the No-Action and a preferred set of alternatives. If necessary, the consultant may use the Mesoscopic/Microscopic model of choice such as TransModeler. This model should be used to help understand the regional distribution of traffic, possible diversions for different design alternatives and to help determine the limits of the micro-simulation analysis.

It is anticipated that Synchro will be used for evaluation of intersection operations and to serve as a basis for the development of a system wide micro-simulation model. The Consultant shall use a micro-simulation model to evaluate the traffic operations of the complete roadway system and report the agreed upon measures-of-effectiveness (MOE's) for the existing conditions, No-Action and preferred set of alternatives. Site specific operational analysis (i.e. turning movement delays, weaving analysis, queue length determination, etc) may also be required at strategic locations within the corridor to help identify interim improvements that may provide operational benefits while remaining consistent with the preferred set of alternatives. Specific locations will be determined by the Consultant in coordination with CDOT, and Mesa County. The Consultant is required to follow the guidelines provided in the FHWA Traffic Analysis Tools for methods for collecting traffic data, setting up and calibrating the micro-simulation models. The Consultant will also be required to coordinate with GVMPO, CDOT traffic and FHWA at key milestones in the traffic modeling and approval process (i.e. model validation and calibration, MOE selections, etc) before additional work proceeds.

In addition, consideration shall be made for multimodal and maximum capacity corridor build-out. The data from these analyses shall be used to aid in the selection of the preferred alternative.

d	Roadway Inventory	_____	_____X_____
	<p>The Consultant will complete a general inventory of existing roadway features within the study area, including shoulder and median, guardrail, fencing, lighting, pavement condition, and access locations. Substandard features will be noted including sight distance, clear zone, turn lane lengths, sidewalk widths, and tapers. Major drainage features and area master plans will be described.</p>		
e	Pedestrian and Bicycle Facilities	_____	_____X_____
	<p>The Consultant shall also analyze existing bicycle and pedestrian facilities within the study area for safety, adequacy, connectivity, and Americans with Disabilities Act Accessibility requirements and make recommendations for improvements accordance with the local Bicycle and Pedestrian Master Plan.</p>		
C.	Safety Assessment	_____X_____	_____X_____
	<p>The consultant shall obtain all available Safety Assessment Reports from CDOT which identify existing safety problems within the project limits, available on the CDOT website. In the alternatives evaluation portion of the PEL Study, and any other sections that pertain to Safety, the consultant shall specifically identify how the "Build" alternatives propose to mitigate the existing safety problems. If CDOT or the consultant deem that existing available traffic safety reports are outdated and need to be updated; the consultant shall prepare a traffic safety assessment report in accordance with CDOT standards. CDOT shall provide all data and statistical summaries necessary to complete the report.</p>		
D.	Existing Transportation Conditions Report	_____	_____X_____
	<p>This report will include a summary of:</p>		
a	Description of roadway characteristics and multi-modal transportation /traffic operations along US 6C within the study area.		
b	Description of any substandard features, sight distance, speed zones, auxiliary lane lengths, curb/gutter, shoulders, sidewalk.		
c	Number of lanes and access locations including any auxiliary lanes.		
d	Traffic and operational analysis including crossroads and other roads and streets as required to assess their ability to effectively collect and distribute traffic. Operational analysis will consider adjacent intersections and improvements.		
e	Summary of existing traffic safety reports or, if deemed necessary by CDOT or the consultant, an updated traffic safety assessment report in accordance with CDOT standards.		

2 **DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE CORRIDOR**

Develop an Executive Summary containing the following:

_____ X

- a. Identify the visions CDOT and each jurisdiction have for the future of the corridor and points of disagreement and congruence.
- b. Refer to data identified in the Existing Transportation Conditions Report regarding existing and expected deficiencies in the transportation system serving the study area to compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.
- c. 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.
- d. Prepare a preliminary list of existing and anticipated deficiencies at the corridor. The list should describe the existing or anticipated deficiencies in the transportation system and the growth or changing land use needs in the study area. Prepare visual displays summarizing data compiled to date. Include key factors including the preliminary list of deficiencies already identified.
- e. Produce a written statement of purpose and need. This statement should be an "umbrella" statement for the corridor, based on identification of needs and deficiencies. The statement should reflect the context sensitivity of the study area's communities to help reach their transportation goals by encouraging the consideration of land use, transportation, environmental and infrastructure needs in an integrated manner. It should include the following:
 - a. Description of project location, length, termini, and a definition of the project study area.
 - b. Description of existing transportation facilities and services, including transit, highway, bus service, park-n-Rides, bicycles and pedestrian, ADA compliance, etc.
 - c. Identification of specific transportation problems and deficiencies (improvements, highway, pedestrian, bicycle, travel times, and transit).
 - d. System linkage information.
 - e. Existing and future capacity traffic projections from GVMPO.
 - f. Social, economic, and environmental justice issues related to purpose and need.
 - g. Safety problems.
 - h. A summary of previous and current transportation studies, community plans, and planning efforts relevant to the project.
- f. Identify goals for the corridor.

3 **ALTERNATIVES REPORT**

A. Alternatives Analysis

- a. Develop Preliminary Evaluation Criteria

_____ X

Prior to development of reasonable alternatives, the Consultant will work with CDOT and the Stakeholders to develop preliminary evaluation criteria and submit the criteria to FHWA for review. Established criteria will be used to evaluate and screen the list of potential preliminary alternatives.

b. Develop Alternatives

The Consultant shall develop an agreed number of alternatives from a universe of options and meaningful implementation phases, which will satisfy the operational requirements and goals of the project. The alternatives shall address the project goals and objectives, account for potential impacts and any necessary roadway improvements and interchanges and the arterial system within the study area. Each alternative will include a discussion of individual component routes within that alternative, their capacities, land use impacts and multi-modal traffic impacts including current and future local access points on the arterial and highway system in the study area to maintain local planning consistency.

The Consultant shall then identify the reasonable alternatives that could be applied for the corridor.

The Consultant shall investigate corridor configurations that satisfy the project's goals and objectives. The alternative analysis will also consider the type of improvements to be used. Conceptual layouts will be developed for each with all major structures both in plan and general profile views.

These alternatives shall respond to projected design year traffic volumes as developed in the travel demand forecasting. The Consultant will evaluate the potential concerns and critical issues of each alternative concept and the degree that each accomplishes the goals and objectives of the study. The appropriateness of each alternative will be reviewed and evaluated by Mesa County, GVMPO, CDOT, FHWA, and other jurisdictions as appropriate.

The Consultant shall complete an initial design of the alternatives decided upon by Mesa County, GVMPO, CDOT, FHWA, and other jurisdictions as appropriate. The design parameters, such as design speed, maximum grades, and typical section will be determined at the beginning and used on each alternative. The Consultant shall prepare the conceptual design for each improvements configuration including alignments, general construction phasing requirements, and major structural requirements so that a conceptual cost estimate can be developed. The cost estimate is to include design costs, ROW identification and acquisition, and construction costs.

c. Screen Alternatives

The Consultant shall utilize a NEPA-appropriate screening process on the universe of alternatives to identify the feasible and significantly different alternatives, which will be later subject to a more detailed NEPA environmental assessment. The purpose of this screening is to eliminate the obviously infeasible alternatives or alternatives that do not meet the Purpose and Need. The Consultant shall develop NEPA-appropriate evaluation criteria and submit them for review and approval by CDOT and FHWA prior to beginning the screening process. The rationale for elimination shall be thoroughly discussed within the PEL documentation for those alternatives that are eliminated from further consideration.

The No-Action Alternative must be defined and carried through the entire evaluation and assessment process. For each alternative that passes the screening process, the Consultant shall incorporate conceptual design to a level that identifies the potential concerns and critical issues for each environmental area listed below. Unless otherwise indicated, the Consultant is responsible for all of the following activities on each of the alternatives that pass the screening process:

A preliminary screening process will be used on the universe of alternatives to identify a limited number of feasible and significantly different alternatives, which will be subject to more detailed evaluation in the "Test Alternatives Analysis." The purpose of this screening is to eliminate the obviously infeasible or unsuitable alternates. All feasible and significantly different options shall be carried forward into more detailed analysis. These feasible and significantly different screened alternatives are to be presented in the first public workshop, and the public's opinion on what issues should be addressed during the detailed analysis of these alternatives is to be solicited. The criteria used in the preliminary screening shall be developed jointly with Mesa County, GVMPO, CDOT, FHWA, and other jurisdictions.

The Consultant shall perform a decision alternative analysis for each improvement type. The decision alternative analysis shall utilize a decision matrix of compiled (data collection phase) information, using criteria developed and approved by CDOT, FHWA, and other jurisdictions as appropriate. The decision matrix criteria shall include design components, cost (financial analysis), social-economic, and environmental concerns. The decision alternative matrix will be compiled to show the differences between each alternative improvement location in a clear fashion (to be understood by the general public).

Environmental (air, noise, water quality, open space, etc.), historic and archaeological impacts, cost, engineering feasibility, construction staging options, transportation impacts, transit impacts, design year level of service and other performance measures, socioeconomic impacts and community acceptability, consistency with and/or impact on adopted plans, urban design issues and opportunities, and phasing of improvements are examples of the considerations to be used in the screening process. The No-Build alternative must be carried through the entire evaluation and assessment process.

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|
| d. Preliminary Sketches | _____ | X
_____ |
| <p>The Consultant shall develop preliminary sketch concepts of structures and landscape/streetscape improvements for the US 6C corridor, as necessary for presentation to stakeholders and the general public. The Consultant shall develop plan and elevation drawings of improvement, urban design features, planting masses, and plan access and development potential of adjacent areas.</p> | | |
| e. Before and After Views | _____ | X
_____ |
| <p>The consultant shall develop a perspective view of each configuration type in a "before" and "after" illustration of existing features and proposed design, as necessary for presentation to stakeholders and the general public.</p> | | |
| f. Test Alternatives Analysis | _____ | X
_____ |
| <p>Following the development of a short-list of alternatives, the Consultant shall perform a comprehensive test of each of the short-listed alternatives. This test shall utilize a decision process, which includes a compilation of all appropriate criteria. In addition to the socioeconomic and environmental concerns, the decision criteria shall include design standards. The criteria will be compiled in coordination with other activities. Following that, a decision matrix shall be created which combines a list of the alternatives under consideration with the results of the test with each criterion. The alternatives shall then be further developed with initial design and financial analysis.</p> | | |

g.	Initial Design of Alternatives	_____	_____X_____
	<p>Once the alternatives have been tested, general profile and cross section studies will be developed for critical areas to analyze the designated alternatives. This information shall be sufficient to determine general cut and fill limits, right-of-way and easement requirements, earthwork and structural requirements. Design parameters such as design speeds, maximum grades, typical sections, intersection and pedestrian routing will be determined at the beginning of the study.</p> <p>The conceptual designs for the roadways, general construction phasing, and major structures will be completed sufficiently so that preliminary cost estimates can be developed and the satisfaction of pertinent design criteria can be demonstrated. Necessary variances will be identified.</p> <p>The following shall be available following completion of the design:</p> <ul style="list-style-type: none"> • Plan and profile of roadways • Typical sections of roadways • Preliminary hydraulic recommendations • Preliminary right-of-way requirements • Recommended construction sequence • Phasing opportunities 		
h.	Financial Analysis of Alternatives		
i	Cost Estimate	_____	_____X_____
	<p>A total cost estimate will be developed in whole or phases of improvement if feasible. Preliminary and final engineering, ROW, construction engineering, construction, and maintenance for the design life will be analyzed.</p>		
ii	Funding Package	_____	_____X_____
	<p>A funding package will be developed in whole or phases of improvement if feasible. The funding sources necessary to construct and maintain the project will be identified and evaluated for appropriateness and feasibility.</p>		
B.	Feasible Alternatives Recommendation	_____	_____X_____
	<p>A "Final Alternatives Report" will be submitted which documents the analysis process. This shall include the final staging plan, socioeconomic and environmental concerns, utility conflicts, drainage, and right-of-way requirements, and total cost for the recommended alternatives. The Consultant is responsible for ensuring that the recommended alternative(s) complies with applicable standards and criteria. Where appropriate, required variances will be identified.</p> <p>A draft for the report shall be submitted for review and comment prior to the submittal of the final report.</p> <p>The travel forecasting for the project (assumptions, methods, and results) and traffic operations for existing conditions and the recommended alternative(s) will be summarized in a Traffic Analysis Report.</p>		
C.	Interim Improvements Operational Analysis	_____	_____X_____

The Consultant shall complete the tasks listed in the Alternatives Analysis section on the previous pages in order to provide feasible alternatives to recommend and prioritize operational improvements for the existing improvement that may be implemented in phases that do not preclude the ultimate configuration.

4. PLANNING ENVIRONMENTAL LINKAGES (PEL) REPORT

X

The PEL Report will be a technical summary of the engineering and environmental considerations, assumptions, analysis methodologies and graphic displays of the final recommended improvements. A draft report will be prepared for CDOT review and approval prior to distribution to the Technical Team. Specific variances will also be identified to clearly define the limitations and specific considerations of alternatives. The report will be revised as necessary based on the review comments received and a Final PEL Report completed.

The consultant will assist CDOT in presentation of the Final PEL Report to CDOT Transportation Commissioners, and local Corridor agency elected officials as needed for concurrence.

The consultant will complete the FHWA PEL Questionnaire for documentation of the PEL Study and use with future NEPA for the recommended improvements. A draft questionnaire will be prepared for CDOT and FHWA review. The questionnaire will be revised as necessary based on the review comments received and a Final PEL Questionnaire completed.

SECTION 8
CONTRACT CONCLUSION (CHECKLIST)

1 SUPPLEMENTAL WORK

It is anticipated that this contract may be supplemented for additional study and/or design efforts above any assumed quantities noted in the current contract scope. Additional efforts will require CDOT approval prior to beginning any work efforts.

2 CONTRACT COMPLETION

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

1. Periodic Reports
2. Billings
3. Meeting Minutes
4. Project Management Plan
5. Project Schedule
6. Existing Transportation Conditions Report
7. Property Ownership Report
8. Traffic Model
9. Environmental Scan Report
10. Logical Termini Memo
11. Purpose and Need Statement
12. Planning Environmental Linkage (PEL) Report
13. Final Alternatives Report
14. Traffic Analysis Report
15. Preliminary Sketches
16. Before and After Views
17. Conceptual Design Plans
18. Cost estimate
19. Funding Package
20. Correspondence with Agencies, Entities, and Public
21. Summary of Public Meetings (including notice, handouts, graphics, comments received)

APPENDICES

- A. REFERENCES
- B. DEFINITIONS
- C. PEL QUESTIONNAIRE

Comments regarding this scope may be directed to:

David Wells

CDOT Agreements Office,

(303)757-9400

APPENDIX A

REFERENCES

- 1 **AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS** (using latest approved versions):
 - A. A Policy on Design Standards-Interstate System
 - B. A Policy on Geometric Design of Highways and Streets
 - C. Guide for Design of Pavement Structures
 - D. Standard Specifications for Highway Bridges
 - E. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
 - F. Guide for the Development of Bicycle Facilities
 - G. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part 1, Specifications and Part II, Tests
 - H. Highway Design and Operational Practices Related to Highway Safety
 - I. Roadside Design Guide

- 2 **COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS** (using latest approved versions):
 - A. CDOT Design Guide (all volumes)
 - B. CDOT Bridge Design Guide
 - C. CDOT Bridge Detailing Manual
 - D. Bridge Rating Manual
 - E. Project Development Manual
 - F. Erosion Control and Storm Water Quality Guide
 - G. Field Log of Structures
 - H. Cost Data Book
 - I. Drainage Design Manual
 - J. CDOT Quality Manual
 - K. CDOT Survey Manual
 - L. CDOT Field Materials Manual
 - M. CDOT Design Guide, Computer Aided Drafting (CAD)
 - N. Standard Plans, M & S Standards
 - O. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
 - P. Item Description and Abbreviations (with code number) compiled by Engineering Estimates and Marked Analysis Unit, CDOT
 - Q. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
 - R. The State Highway Access Code

APPENDIX A
REFERENCES (CONTINUED)

- S. Utility Manual
 - T. TMOSS Generic Format
 - U. Field TMOSS Topography Coding
 - V. Topography Modeling Survey System User Manual
 - W. Interactive Graphics System Symbol Table
- 3 **CDOT PROCEDURAL DIRECTIVES** (using latest approved versions):
- A. No. 400.2 Monitoring Consultant Contracts
 - B. No. 501.2 Cooperative Storm Drainage System
 - C. No. 514.1 Field Inspection Review (FIR)
 - D. No. 516.1 Final Office Review (FOR)
 - E. No. 1217a Survey Request
 - F. No. 1304.1 Right-of-Way Plan Revisions
 - G. No. 1305.1 Land Surveys
 - H. No. 1601 Interchange Approval Process
 - I. No. 1700.1 Certification Acceptance (CA) Procedures for Location and Design Approval
 - J. No. 1700.3 Plans, Specifications and Estimates (PS&E) and Authorization to Advertise for Bids under Certifications Acceptance (CA)
 - K. No. 1700.5 Local Entity/State Contracts and Local Entity/Consultant Contracts and Local Entity/R.R. Contracts under C.A
 - L. No. 1700.6 Railroad/Highway Contracts (Under Certification Acceptance)
 - M. No. 1905.1 Preparation of Plans and Specifications for Structures prepared by Staff Bridge Branch
- 4 **FEDERAL PUBLICATIONS** (using latest approved versions):
- A. Manual on Uniform Traffic Control Devices
 - B. Highway Capacity Manual
 - C. Urban Transportation Operations Training – Design of Urban Streets, Student Workbook
 - D. Reference Guide Outline – Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
 - E. FHWA Federal-Aid Policy Guide
 - F. Technical Advisory T6640.8A
 - G. U.S. Department of Transportation Order 5610.1E
 - H. Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques
 - I. ADAAG Americans With Disabilities Act Accessibility Guidelines
- 5 **TRANSPORATION RESEARCH BOARD:**
- A. Access Management Manual

APPENDIX B

DEFINITIONS

1	AASHTO-	American Association of State Highway & Transportation Officials
2	ADT-	Average two-way 24-hour Traffic in Number of Vehicles
3	AREA-	American Railway Engineering Association
4	ATSSA-	American Traffic Safety Services Association
5	AT&SF-	Atchison, Topeka & Santa Fe Railway Company
6	ADAAG-	Americans with Disabilities Accessibility Act Guidelines
7	BAMS-	Bid Analysis and Management Systems
8	BLM-	Bureau of Land Management
9	BNRR-	Burlington Northern Railroad
10	CA-	Contract Administrator. The CDOT Manager responsible for the satisfactory completion of the contract by the consultant.
11	CAP-	CDOT's Action Plan
12	CBC-	Concrete Box Culvert
13	CDOT-	Colorado Department of Transportation
14	CDOT/PM-	Colorado Department of Transportation Project Manager – The CDOT Engineer responsible for the day to day direction and CDOT Consultant coordination of the design effort.
15	CDOT/STR-	Colorado Department of Transportation Structure Reviewer – The CDOT Engineer responsible for reviewing and coordinating major structural design
16	CDPHE-	Colorado Department of Public Health and Environment
17	CEQ-	Council on Environmental Quality
18	COG-	Council of Governments
19	COGO-	Coordinate Geometry Output
20	CONSULTANT-	Consultant for this project
21	CONTRACT ADMINISTRATOR-	Typically a Region Engineer or Branch Head. The CDOT employee directly responsible for the satisfactory completion of the contract by the Consultant. The contract administration is usually delegated to a CDOT Project Manager.

APPENDIX B
DEFINITIONS (CONTINUED)

22	C/PM-	Consultant Project Manager – The Consultant Engineer responsible for combining the various inputs in the process of completing the project plans and managing the Consultant design effort.
23	DEIS-	Draft Environmental Impact Statement
24	DHV-	Future Design Hourly Volume (two-way unless specified otherwise)
25	GVMPO-	Grand Valley Metropolitan Planning Organization
26	UPRR-	Union Pacific Railroad
27	EA-	Environmental Assessment
28	EIS-	Environmental Impact Statement
29	ESAL-	Equivalent Single Axle Load
30	ESE-	Economic, Social and Environmental
31	FEIS-	Final Environmental Impact Statement
32	FEMA-	Federal Emergency Management Agency
33	FHPG-	Federal Aid Highway Policy Guide
34	FHWA-	Federal Highway Administration
35	FIPI-	Finding In Public Interest
36	FIR-	Field Inspection Review
37	FONSI-	Finding of No Significant Impact
38	FOR-	Final Office Review
39	GPS-	Global Positioning System
40	MAJOR STRUCTURES-	Bridges and culverts with a total clear span length greater than twenty feet. This length is measured along the centerline of roadway for bridges and culverts, from abutment face to abutment face, Retaining structures are measured along the horizontal distance along the top of the wall. Structures with exposed heights at any section over five feet and total lengths greater than a hundred feet as well as overhead structures including (bridge signs, cantilevers and butterflies extending over traffic) are also considered major structures.

APPENDIX B
DEFINITIONS (CONTINUED)

41	MPO-	Metropolitan Planning Organization (i.e. Denver Regional Council of Governments, Pikes Peak Area Council of Governments, Grand Junction MPO, Pueblo MPO, and North Front Range Council of Governments).
42	MS4-	Municipal Separate Storm Sewer System
43	NEPA-	National Environment Policy Act
44	NGS-	National Geodetic Survey
45	NICET-	National Institute for Certification in Technology
46	NOAA-	National Oceanic and Atmospheric Administration
47	PAPER SIZES-	See Computer-Aided Drafting Manual (CDOT); Table 6-13 and Table 8-1
48	PE-	Professional Engineer registered in Colorado
49	PM-	Program Manager
50	PLS-	Professional Land Surveyor registered in Colorado
51	PRT-	Project Review Team
52	PS&E-	Plans, Specifications and Estimate
53	PROJECT-	The work defined by this scope
54	ROR-	Region Office Review
55	ROW-	Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to a highway
56	ROWPR-	Right-of-Way Plan Review
57	RTD-	Regional Transportation Director
58	T/E-	Threatened and/or Endangered Species
59	SH-	State Highway Numbers
60	TMOSS-	Terrain Modeling Survey System
61	TOPOGRAPHY-	In the context of CDOT plans, topography normally refers to existing cultural or man-made details.
62	UD & FCD-	Urban Drainage and Flood Control District
63	USCOE-	United States Army Corp of Engineers

Note: For other definitions and terms, refer to Section 101 of the CDOT Division of Highways Standard Specifications for Road and Bridge Construction and the CDOT Design Guide.

APPENDIX C

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 screen process; alternative screening 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. 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?

APPENDIX C PEL QUESTIONNAIRE (CONTINUED)

- 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?
 - e. 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.
 - f. Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where it can be found.
 - g. Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.
 - h. 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?
 - i. Are there any other issues a future project team should be aware of?
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.

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SCOPE OF WORK BASIC CONTRACT

CONTRACT TYPE [CHECK ONE]

Specific Rate of Pay

Cost Plus Fixed Fee

Lump Sum

CONTRACT DATE: TBD

CITY OF WHEAT RIDGE PROJECT NUMBER: M-01-13

PROJECT LOCATION: SH 121/Wadsworth Boulevard: W 35th to W 46th

CDOT PROJECT NUMBER: STU 1211-081

CDOT PROJECT CODE: 19488

THE COMPLETE SCOPE OF WORK INCLUDES THIS DOCUMENT (ATTACHED TO THE CONTRACT FOR CONSULTANT SERVICES) AND, IF REFERENCED,

Dated

SECTION 1 PROJECT SPECIFIC INFORMATION

SECTION 2 PROJECT MANAGEMENT AND COORDINATION

SECTION 3 EXISTING FEATURES

SECTION 4 REFERENCE ITEMS NEEDED BY THE CONSULTANT

SECTION 5 GENERAL INFORMATION

SECTION 6 PROJECT INITIATION AND CONTINUING REQUIREMENTS

SECTION 7 PEL STUDY WORK TASK DESCRIPTIONS

SECTION 8 CONTRACT CONCLUSION (CHECKLIST)

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SECTION 1

PROJECT SPECIFIC INFORMATION

1 PROJECT BACKGROUND

State Highway 121/Wadsworth Boulevard is a primary north-south corridor through the City of Wheat Ridge. The Roadway is classified as a Principal Arterial and provides access to Interstate 70, connects the City to the neighboring Cities of Arvada and Lakewood, and intersects with three regional FasTracks corridors. In several City planning documents, Wadsworth Boulevard is identified as a primary commercial corridor and a key target area for redevelopment. In DRCOG's 2035 Metrovision Plan, Wadsworth Boulevard is shown as a Tier 2 – Potential Regional and State Intercity Corridor. For many Front Range commuters, Wadsworth Boulevard serves as a primary north-south-route. The street currently has two travel lanes in each direction with side by side left turns through the City, except at the signalized street intersections where single left turn lanes exist. Dedicated right turn lanes exist at some street intersections and businesses. Multi-modal facilities are sporadic and most do not meet current standards.

The City of Wheat Ridge (City) is soliciting consultant services to investigate and make recommendations for improvements to the street to provide additional capacity, to improve the multi-modal facilities, and to ensure adequate local access. The selected consultant team (hereafter referred to as the Consultant) shall evaluate the existing and future operating conditions and features of the street. In this project the scope of services to be provided by the Consultant shall produce a Planning and Environmental Linkage (PEL) Report with the goal of identifying existing conditions, anticipated problem areas, and developing a range of multi-modal improvements to reduce congestion and improve operations and safety of the street. The results of these efforts may ultimately be used to prepare National Environmental Policy Act (NEPA) studies and final design.

2 PROJECT GOALS

This project is intended to examine the need for the following improvements to the street, as well as producing design, funding, scheduling, and phasing recommendations to achieve them:

- A. Higher level-of-service operations at the signalized intersections
- B. Improved multi-modal facilities to serve transit and other modes of transportation
- C. Improved aesthetics and safety by incorporating streetscape and lighting
- D. Reconstruction to current design and operation standards
- E. Adequate local access to service existing and planned adjacent land uses

The objective of this project is to work with stakeholders to analyze and develop a range of improvements to reduce congestion and improve operational performance and safety of the street and local access. The project will assist the City, other public agencies, and resource agencies in identifying issues of importance to each respective agency.

The Consultant will produce documents and deliverables in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix A to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes.

3 PLANNED IMPROVEMENTS

This project is located on SH 121/Wadsworth Boulevard between mileposts 15.367 and 16.577 (W. 35th and W. 48th Avenues) in Jefferson County.

4 WORK DURATION

The time period for the work described in this scope is approximately 18 to 24 months.

5 CONSULTANT RESPONSIBILITY AND DUTIES

The Consultant is responsible for conducting project coordination, agency coordination, public participation, feasibility study conceptual design and alternatives analysis, environmental and design data collection and analysis, specifications and estimate, and post design services as described in the following sections.

6 WORK PRODUCT

The work in the scope of services for this project will be contracted on an individual Task Order basis, as needed and if needed as determined by the City. The City reserves the right to, at its sole discretion, decide to not issue task orders for any part of the work contained in this scope of services. The Consultant work products will include:

- A. Reports
- B. Project Coordination
- C. Schedules
- D. Meeting Minutes

Detailed work product requirements are described in the following sections. All work required to complete this Scope of Work requires the use of English Units.

7 WORK PRODUCT COMPLETION

All submittals must be accepted by the City’s Public Works Director or designee.

8 ADDITIONAL PROJECT INFORMATION

Additional information regarding this project is included in the following documents:

- A. Accident history data
- B. Traffic Data
- C. GIS data including:
 - a Aerials from 2001 to 2012
 - b Roadway features
 - c Planimetric data
 - d ROW, easement, and property data
 - e Zoning data

Please provide a notice of five working days prior to obtaining the document(s) in person.

9 SCOPE OF WORK ORGANIZATION

This draft scope of work has been reviewed by the City and reflects a plan of approach based on the known goals. One factor determining the selection of a consultant is the ability of that consultant to analyze the project goals, evaluate the work elements, and formulate a work plan. This process may produce new approaches or modification to the project work elements. Because of that, all consultants should be aware that the Final Scope of Work for a project will be produced with input from the selected Consultant.

SECTION 2

PROJECT MANAGEMENT AND COORDINATION

1 CITY CONTACT

The Contract Administrator for this project is:

Name: Steve Nguyen, PE
Title: Engineering Manager

Active day-to-day administration of the contract will be delegated to:

Name: Mark A Westberg, PE, CFM
Title: Projects Supervisor
Address: 7500 W 29th Avenue, Wheat Ridge CO 80033
Phone: 303-235-2863
E-mail: mwestberg@ci.wheatridge.co.us

2 PROJECT COORDINATION

Coordination will be required with the following entities:

- A. Colorado Department of Transportation (CDOT)
- B. Jefferson County
- C. Regional Transportation District (RTD)
- D. Denver Regional Council of Governments (DRCOG)
- E. Urban Drainage & Flood Control District (UDFCD)
- F. Environmental Protection Agency (EPA)
- G. Federal Highway Administration (FHWA)
- H. Federal Transit Authority (FTA)
- I. Utility Providers
- J. State and Federal Resource Agencies
- K. Emergency Response Agencies

The consultant should anticipate that a design which affects an agency will have to be accepted by that agency prior to its acceptance by the City. Submittals to affected agencies will be coordinated with the City.

SECTION 3

EXISTING FEATURES

1 STRUCTURES

There are no known structures at this time.

2 UTILITIES

Contact Utility Notification Center of Colorado (UNCC) at 1-800-922-1987

3 IRRIGATION DITCHES

There is no known irrigation ditch involvement at this time.

4 RAILROADS

There is no known railroad involvement at this time.

Note: The above is a list of the known features in the area. It should not be considered as complete. The Consultant should be alert to the existence of other possible conflicts.

SECTION 4

REFERENCE ITEMS NEEDED BY THE CONSULTANT

1 CURRENT CDOT MANUALS, SPECIFICATIONS, STANDARDS, ETC.

The consultant shall obtain and utilize the most recent CDOT adopted references including standards and specifications, manuals and software, electronic files of applicable standards, and all CDOT forms specified in this document or as directed by the City. A list of general reference material is provided in Appendix A.

2 CURRENT CITY MANUALS, SPECIFICATIONS, STANDARDS, ETC.

The consultant shall obtain and utilize the most recent City adopted references including standards and specifications, manuals and software, electronic files of applicable standards, and all City forms specified in this document or as directed by the City. A list of general reference material is provided in Appendix A.

SECTION 5

GENERAL INFORMATION

1 NOTICE TO PROCEED

Work will not commence until the written Notice-to-Proceed is issued by the City with certification from the Consultant that the work will be completed within the allotted time. Work may be required, night or day, on weekends, on holidays, or on split shifts. The City must concur in time lost reports prior to the time lost delays being subtracted from time charges. Subject to City prior approval the time charged may exclude the time lost for:

- A. Reviews and Approvals
- B. Response and Direction

2 PROJECT COORDINATION

A. Routine Working Contact

The routine working contact will be between the City's Project Manager (City/PM) and the Consultant Project Manager (C/PM) as defined in Appendix B.

B. Project Manager Requirements

Each Project Manager will provide the others with the following:

- a. A written synopsis or copy of their respective contacts (both by telephone and in person) with others.
- b. Copies of pertinent written communications.

3 ROUTINE REPORTING AND BILLING

The Consultant will provide the following on a routine basis:

A. Coordination

Coordination of all contract activities by the C/PM

B. Periodic Reports and Billings

The periodic reports and billings required by CDOT Procedural Directive 400.2 (Monitoring Consultant Contracts).

C. Minutes of all Meetings:

The minutes will be completed and provided to the City/PM within five (5) working days after the meeting. When a definable task is discussed during a meeting, the minutes will identify the “Action Item”, the party responsible for accomplishing it, and the proposed completion date.

D. General Reports and Submittals

In general, all reports and submittals must be approved by City prior to their content being utilized in follow-up work effort.

4 PERSONNEL QUALIFICATIONS

The C/PM must be approved by the City. Certain tasks are required to be done by a Licensed Professional Engineer (PE) or a Professional Land Surveyor (PLS) who is registered with the Colorado State Board of Registration for Professional Engineers and Land Surveyors, National Institute for Certification in Engineering Technology (NICET). Other certifications may be required for project inspectors and testers.

5 CITY COMPUTER/SOFTWARE INFORMATION

The consultant shall utilize the most recent City adopted software. The primary software used by the City is as follows:

- | | |
|------------------------|--------------------------------------------------------------------------------------------------------------|
| A. Drafting/CADD | AutoCAD Civil 3D 2011 with the City’s standards |
| B. Earthwork | AutoCAD Civil 3D 2011 |
| C. Survey | AutoCAD Civil 3D 2011 |
| D. Geometry | AutoCAD Civil 3D 2011 |
| E. Estimating | Microsoft Excel 2010 |
| F. Specifications | Microsoft Word 2010 |
| G. Traffic Operations | CORSIM, VISSIM, and DYNASMART |
| H. Travel Demand Model | TransCAD, and/or DYNASMART |
| I. Traffic Signals | Synchro/Sim Traffic |
| J. Hydraulics | Hydrologic Engineering Center's River Analysis System (HEC-RAS) |
| K. Pavement Design | DARWin (AASHTO) |
| L. Scheduling | Microsoft Project 2010 |
| M. GIS | ESRI, ArcMap geodatabases (Projection: NAD 83 HARN State Plane Colorado Central FIPS 0502 Coordinate System) |
| N. Noise Modeling | TNM v2.5 |
| O. Misc | Microsoft Word 2010, Excel 2010, Power Point 2010 |
| P. Reports | Adobe Acrobat 10.0 Professional, Microsoft Word 2010 |

6 COMPUTER DATA COMPATIBILITY

The data format the City presently utilizes which Consultants shall be required to use for submitting roadway design data is AutoCAD Civil 3D 2011.

The data format used by the Consultant to submit surveying and photogrammetric data shall be as determined by the City/PM. The data format for submitting design computer files shall be compatible with the latest version of the adopted City standards. The Consultant shall immediately notify the City/PM if the firm is unable to produce the desired format for any reason and cease work until the problem is resolved. Refer to Table 1, Submittals, for additional information regarding the formats and the acceptable transmittal media.

7 PROJECT DESIGN DATA AND STANDARDS

Appendix A is a list of technical references applicable to CDOT work. The consultant is responsible for ensuring compliance with the latest CDOT adopted version of the listed references. Conflicts in criteria shall be resolved by the City/PM.

SECTION 6

PROJECT INITIATION AND CONTINUING REQUIREMENTS

This list establishes the consultant’s individual task responsibility. The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, in accordance with the forms and conditions contained herein, and the applicable City and CDOT standards. Selected work tasks shall be assigned only after coordination and consultation with the City. The Consultant is also responsible for coordinating the required work schedule for those tasks accomplished by the City and other agencies. The Consultant should review this entire section to identify applicable material. Contact the City/PM if clarification is required (see Section 2.1, City Contact).

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 City/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 plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator (see Section 2.1, City Contact) before starting the work.

	<u>City/Other</u>	<u>Consultant</u>
1 <u>PROJECT INITIATION AND CONTINUING REQUIREMENTS</u>		
A. Initial Project Meeting	<u> X </u>	<u> X </u>
<p>An initial project kick-off meeting will be held, coordinated by the Consultant, and conducted by the City. The meeting will review the Project Management Plan, project scope, schedule, key milestones, and project study area boundary. The meeting may include an on-site inspection to familiarize the entire project team with the character and conditions of the area. The Consultant shall develop an invitation list in coordination with the City, send notices with a draft agenda, and provide meeting minutes to all those invited. The Consultant will facilitate a chartering session among CDOT, the City, and Consultant team members to establish the project charter, including defining the team's purpose and establishing critical success factors, goals, roles and responsibilities, operating guidelines, interpersonal behaviors, and other elements. The charter will be a written document that is signed by all participants.</p>		
B. Project Management Plan	<u> </u>	<u> X </u>
<p>The Consultant shall submit a plan for managing the project, including work assignments, project schedule, document quality assurance program, administrative record, document and agency reviews, and other project needs.</p>		
C. Resource Review	<u> X </u>	<u> X </u>
<p>Consultant shall review relevant standards and specifications and document environmental requirements applicable to the project. This task shall include two meetings, one with CDOT and one with the City to discuss the initial work efforts of the project.</p>		

- D. Project Study Area Boundary X X
- Preliminary project logical termini will be recommended by the consultant. The consultant will perform necessary research and data collection to propose a study area boundary and logical termini for use in scoping. The consultant will coordinate with CDOT and the City for recommendation to FHWA for approval.
- E. Project Schedule X
- The initial project schedule will be prepared by the Consultant, reviewed with the City, and refined to provide detail as requested. Modifications shall be made for acceptance by the City. The schedule will be reviewed and discussed at regular intervals and updated as necessary. The work in this scope is expected to take approximately 18 to 24 months to complete.
- F. Obtain Necessary Trespass Rights and Permits X X
- Some activities may require work on land not controlled by the City or CDOT. In such cases the City shall obtain the necessary written permission to enter the premises. The City's standard Right of Entry Form or CDOT Form 730 may be used for this purpose. The Consultant will assist the City with work efforts consisting of the following activities:
- a. Consultant shall develop ownership lists with names and telephone numbers of persons to contact for Right-of-Entry (ROE). Prepare initial mailing list from this effort.
 - b. The City shall prepare ROEs for 1st tier properties for field work and other activities as they arise.
 - c. The City shall track status of ROEs, when sent, when returned, approved or rejected, conditions, other interested parties and tenants, etc. The ROEs shall apply to City and Consultant personnel.
 - d. Consultant shall obtain permits, as required, for fieldwork activities.
- G. Plan and arrange Required Traffic Control X
- Consultant field activities that interfere with traffic operations within existing roadways will require control of traffic. The Consultant will plan and provide any required traffic control for the survey, testing, or the design process. Traffic control operations will be in accordance with the MUTCD. The proposed Method for Handling Traffic (MHT) must be submitted to the City/PM. Also, certification of the Traffic Control Supervisor as a Worksite Traffic Supervisor by the American Traffic Safety Services Association (ATSSA) or as a TCS (Traffic Control Supervisor) by the Colorado Contractors Association (CCA) shall be required.
- The Consultant will work directly with the City to prepare and submit appropriate basic traffic control plans for work tasks which may be required and are within traveled roadway to CDOT for approval. Any work within the City's right of way will require a permit and traffic control plan approved in advance by the City.
- H. Progress Meetings X X
- The City and the Consultant will meet at regular intervals, to coordinate and track work efforts, progress and issues, and to work towards resolution of potential problems. The C/PM shall provide a status report of the project schedule and budget at regular intervals. The C/PM shall conduct the meetings, send meeting notices, agendas and handout materials, and prepare and distribute meeting minutes. The minutes of each meeting shall track and report progress on action items identified during previous meetings. Team meetings will be organized as follows:

a. Project Team Meetings:

Project Team consists of the City and Consultant Project Managers. Team will meet on a bi-weekly basis to review status of and manage the overall project progress, schedule, and work plan. Team meetings will be used to conduct primary evaluations and decisions required during the PEL process.

b. Technical Team Meetings:

Technical Team consists of CDOT, the City, and Consultant technical task leaders responsible for coordination of technical information as needed. Team will meet on a 6-week basis to review status and progress of project technical materials and conceptual designs.

I. Public Involvement Coordination X X

The City will assist the Consultant in organizing all Stakeholder meetings and Public Meetings. The Consultant is responsible for creating and providing all materials for these meetings. It is anticipated that a minimum of two meetings between the Consultant and the Public-Stakeholders will be necessary in this Task. In addition to this, it is anticipated that numerous other contacts will need to be made with all of the public agency stakeholders, both at the staff level and the elected official level, to communicate and negotiate the stakeholders' concerns about specific problems and visions for the corridor.

The Consultant shall provide the presentation aids, and help conduct the following meetings:

a. General Public Meeting (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the public, add to the “contact list”, and gather information regarding local concerns. The meetings may also take the form of a work session or workshop with the affected parties.

b. Resource Agency Meetings (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the resource agencies, add to the “contact list,” and gather information regarding resources of concern. The meetings may also take the form of a work session or workshop with the resource agencies.

c. City Council Meetings (information and workshops)

The format of these meetings will be dictated by the project and goals for the meetings. These meetings may be used to establish communications with the local leaders and gather information regarding resources of concern. The meetings may also take the form of a work session or workshop with the City Council.

SECTION 7

PEL STUDY WORK TASK DESCRIPTIONS

The Study will be conducted in accordance with the Statewide and Metropolitan Planning Regulation 23 CFR 450. The provisions linking planning and NEPA presented in Section .318 and Appendix A of 23 CFR 450 are to be followed. The findings of the PEL Study will establish the Purpose and Need, subsequent phase study area and reasonable alternatives, logical termini and independent utility, and programming priorities/timeframes/funding to be used in updating transportation plans and transportation improvement programs (TIPs).

The Study will include development and evaluation of alternatives based on a consideration of Purpose and Need, geometric, planning and environmental factors, the location of communities and other developed areas, a traffic feasibility analysis, and public and agency input. PEL Study alternatives will initially be developed based on

secondary source or available environmental and community data, and will be refined through agency and public input and other on-going studies. Environmental and community data will be updated for the refined corridors through photo interpretation and selected ground-truthing. The intent of the PEL Study analysis is not to identify impacts, but rather to identify potential roadblocks for those PEL Study alternatives which provide the best balance in meeting the Purpose and Need and avoiding/minimizing the potential to affect resources during subsequent study phases.

The Study will be developed and documented in a form that can be incorporated by reference, as appropriate, in subsequent NEPA document(s) as outlined in Appendix X to 23 CFR Part 450 – Linking the Transportation Planning and NEPA Processes. All final deliverables identified in this contract will be of such quality that they could be incorporated directly or by reference into these NEPA documents. The study process will comply with the requirements of the Moving Ahead for Progress in the 21st Century (MAP-21).

This list establishes the consultant’s individual task responsibility. The consultant shall maintain the ability to perform all work tasks which are indicated below by an ‘X’ in the consultant column, in accordance with the forms and conditions contained herein, and the applicable City and CDOT standards. Selected work tasks shall be assigned only after coordination and consultation with the City. The Consultant is also responsible for coordinating the required work schedule for those tasks accomplished by the City and other agencies. The Consultant should review this entire section to identify applicable material. Contact the City/PM if clarification is required (see Section 2.1, City Contact).

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 City/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 plan shall be developed by the Consultant which satisfies the requirements of the project development. This plan must be approved by the Contract Administrator (see Section 2.1, City Contact) before starting the work.

	<u>City/Other</u>	<u>Consultant</u>
1 <u>EXISTING CONDITIONS REPORT</u>		

During the development of the environmental document, conceptual design efforts will be required to develop and refine alternatives for later inclusion into the NEPA screening process. Conceptual design efforts will include the following:

- | | | |
|-----------------------------------------------------------------------------------------------|-------|----------------------|
| A. Evaluation of Existing Roadway Conditions | _____ | _____ <u>X</u> _____ |
| a. Acquire available construction as-built files, records, and information for the following: | | |
| i. Accident records | | |
| ii. Street geometry | | |
| iii. Drainage and floodplain conditions | | |
| iv. Lighting | | |
| v. Traffic signals | | |
| vi. Pedestrian and bike facilities | | |
| vii. Transit facilities | | |

b. Initial geology investigation

The Consultant shall conduct and document a thorough investigation of the project area to determine existing geologic conditions including but not limited to soil maps, major excavations, unsatisfactory sub-grade materials, present and potential subsidence, consideration and description of the water table (depth/gradient), etc. Preliminary borings (assume 8) will be taken to evaluate the condition of the pavement sub-grade structure.

c Initial utility investigation

The Consultant shall conduct and document an investigation of the project area to determine existing utility conditions within the project limits. As part of this investigation the Consultant will collect utility location key maps for all utilities in the project area in coordination with CDOT Region 1 utilities specialist, identify all known utilities, ownership, type, size, and special conditions to consider should utility relocation be required, and research and obtain copies of utility easements (public and private) and utility franchise agreements to determine conditions under which the utility was established in its present location (e.g. by revocable permit or by a privately owned easement).

As part of the preliminary field survey planimetric mapping requirements, above ground utilities such as poles, manholes, valves, pedestals, guy wires, and other visible utility features will be located.

d Existing Environmental Conditions

Conduct an environmental scan and list of critical environmental issues within the corridor that include the following tasks:

i Map environmental resources and prepare a list of environmental issues. Include, at a minimum:

- A Floodways and 100-year flood plain boundaries
- B Likely locations of wetlands
- C Known archaeological and paleontological sites
- D Mines
- E Hazardous waste sites
- F Community or public wells
- G Historical buildings, sites, and districts
- H Rivers and lakes (identifying any designated wild and scenic rivers)
- I State and national forests
- J Wildlife reserves
- K Critical wildlife habitat
- L Threatened and endangered species (locations or likely presence)
- M Public parks and recreation facilities
- N Prime agricultural land
- O Barrier effect
- P Pedestrian and bicycle access
- Q Noise
- R Air quality
- S Neighborhood/business displacement
- T Community facilities (eg churches, schools, banks, groceries)

ii Identify those areas expected to require further analysis for NEPA purposes.

iii Prepare an environmental scan report for the City, resource agency, and public review.

iv Identify and describe any features that may require context sensitivity.

v Expected Products (Results)

- A An environmental scan map of key socioeconomic and environmental resources;
- B A list of environmental issues within the corridor, and identification of areas that require further analysis.
- C A report summarizing the results of the research of land uses and other characteristics of the region. The report should include:
 - a Community profile, including socioeconomic characteristics, population, growth trends, and employment trends for use in future forecasts
 - b Current land uses
 - c Planned land uses incorporating the City's comprehensive plan, urban renewal plan, sub-area plans, etc.
 - d Historical and cultural buildings and site

e Existing conditions summary

Summarize findings of existing roadway conditions in a graphical plan set (Geometric Health Report). Plans (11" x 17", scale: 1" = 50') will be based on aerial photography of the project limits. A ranking

system (Low/Medium/High) will be used to compare existing conditions to the specific design criteria for the project limits. Location of comparisons will be charted and indicated on the plan set.

The Geometric Health Report and supporting summary information will be included in the existing roadway structures section of environmental document.

A summary of findings from the initial geology and initial utility investigations will be included in the environmental existing conditions data submittal document (see Section 9.1.A Preliminary Data Submission).

B. Traffic Study

_____ X

a Traffic data collection

The Consultant shall obtain current traffic counts for the project limits and surrounding roadway network impacted by the project to evaluate the existing traffic operations. Available traffic data shall be compiled from the City and other sources including CDOT automated traffic recorder locations.

The Consultant shall conduct a traffic count program to facilitate level of service evaluation at the signalized street intersections. Daily vehicle classification counts will be collected at relevant strategic locations along Wadsworth Boulevard, and AM and PM peak hour turning movement counts will be collected at relevant strategic local intersections on two consecutive weekdays. Classification count and intersection turning movement count locations are to be determined by the Consultant in coordination with the City. Daily traffic counts shall be completed on Wadsworth Boulevard to evaluate merge, diverge, and weave operations. To assist in the evaluation of potential neighborhood traffic impacts, up to twelve 48-hour speed/volume counts will be conducted on neighborhood streets.

b Travel demand forecasting

Travel demand modeling shall begin at the same time as data collection. The consultant will utilize the adopted 2035 regional DRCOG model, COMPASS, and develop a sub-area model specific to Wadsworth Boulevard. The new COMPASS model has a more refined transportation analysis zone structure than previous models, so the Consultant shall assume that extensive zone restructuring and network refinement is not required but that some network and TAZ refinement is expected. The DRCOG model does contain a complex transit component. It is not the intent of this scope of work to duplicate efforts of transit focused projects in the vicinity of the project limits. Therefore, any specific transit modeling should be coordinated with DRCOG and RTD. The consultant shall be responsible for performing "reasonableness" checks on information developed and derived from use of the DRCOG model. The primary product of this work will be 2035 travel demand forecasts approved for study use by DRCOG. These forecasts will be used to develop 2035 traffic movements at study intersections, un-signalized ramp movements, and along major arterials. The Consultant shall use the approved DRCOG data sets and road network to ensure that the traffic analysis is compatible with the NEPA process.

c Traffic operations

Traffic operational analysis will include an evaluation of the existing conditions as well as a 2035 analysis for the No-Action and a preferred set of alternatives. It is recommended the consultant use the DynasmartP/DynusT model that exists with DRCOG to aid on larger scale planning and operational analysis. This model should be used to help understand the regional distribution of traffic, possible diversions for different design alternatives and to help determine the limits of subsequent traffic operational analysis.

It is anticipated that Synchro will be used for evaluation of intersection operations and to serve as a basis for the development of a system wide traffic model. The Consultant shall use the traffic model to evaluate the traffic operations of the complete roadway system and report the agreed upon measures-of-effectiveness (MOE's) for the existing conditions, No-Action and preferred set of alternatives. Site specific operational analysis (i.e. turning movement delays, weaving analysis, queue length determination, etc) may also be required at strategic locations on Wadsworth Boulevard to help identify interim improvements that may provide operational benefits while remaining consistent with the preferred alternative. Specific locations will be determined by the Consultant in coordination with the City. The Consultant will be required to coordinate with CDOT traffic and FHWA at key

milestones in the traffic modeling and approval process (i.e. model validation and calibration, MOE selections, etc) before additional work proceeds.

In addition, consideration shall be made for multimodal and maximum capacity corridor build-out. The data from these analyses shall be used to aid in the selection of the preferred alternative.

d Problem identification

Based on the initial traffic data collection, travel demand forecasting, and traffic operational analyses, the consultant shall identify traffic problem areas and determine the effects to the surrounding roadway network and intersections. This analysis shall consider traffic volumes, travel/access patterns, LOS, delays, travel times, and speeds in neighborhoods and other areas of anticipated traffic congestion. The Consultant shall coordinate this work with other studies in the immediate area.

e Pedestrian and Bicycle Facilities

The Consultant shall also analyze existing bicycle and pedestrian facilities for safety, adequacy, connectivity, and Americans with Disabilities Act Accessibility requirements and make recommendations for improvements accordance with the City's Bicycle and Pedestrian Master Plan and Streetscape Design Manual.

f Documentation

The Consultant shall use the information from the traffic study to create a summary report that will be used under a later task order for submittal to the Transportation Commission if the NEPA process determines that major improvements to Wadsworth Boulevard are necessary.

C. Safety Assessment Report

_____ X

The Consultant shall obtain all available Safety Assessment Reports from CDOT which identify existing safety problems within the project limits, available on the CDOT website. In the alternatives evaluation portion of the PEL Study and of the EA, and any other sections that pertain to Safety, the consultant shall specifically identify how the "Build" alternatives propose to mitigate the existing safety problems. If the City or the Consultant deem that existing available traffic safety reports are outdated and need to be updated; the consultant shall prepare a traffic safety assessment report in accordance with CDOT standards. The City shall provide all data and statistical summaries necessary to complete the report.

2 **DEVELOP A STATEMENT OF PURPOSE AND NEED AND IDENTIFY GOALS FOR THE CORRIDOR**

Develop an Executive Summary containing the following:

_____ X

- A. Identify the visions CDOT and the City have for the future of the street and points of disagreement and congruence.
- B. Refer to data identified in the Existing Conditions Report regarding existing and expected deficiencies in the transportation system serving the study area to compile a list of system deficiencies. Where possible, locate the deficiencies on a base map for use at the public meetings.
- C. 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.
- D. Prepare a preliminary list of existing and anticipated deficiencies on the corridor. The list should describe the existing or anticipated deficiencies in the transportation system and the growth or changing needs in the study area. Prepare visual displays summarizing data compiled to date. Include key factors including the preliminary list of deficiencies already identified.
- E. Produce a written statement of purpose and need. This statement should be an "umbrella" statement for the corridor, based on identification of needs and deficiencies. The statement should reflect the context sensitivity of the study area's communities to help reach their transportation goals by encouraging the

consideration of land use, transportation, environmental, and infrastructure needs in an integrated manner. It should include the following:

- a. Description of project location, length, termini, and a definition of the project study area.
- b. Description of existing transportation facilities and services, including transit, highway, bus service, park-n-Rides, bicycles and pedestrian, etc.
- c. Identification of specific transportation problems and deficiencies (highway, pedestrian, bicycle, travel times, and transit).
- d. System linkage information.
- e. Existing and future capacity traffic projections from DRCOG.
- f. Social, economic, and environmental justice issues related to purpose and need.
- g. Safety problems.
- h. A summary of previous and current transportation studies community plans, and planning efforts relevant to the project.

F. Identify goals for the corridor.

3 **ALTERNATIVE SELECTION REPORT**

A. Alternatives Analysis

_____ X

a. Develop Preliminary Evaluation Criteria

Prior to development of reasonable alternatives, the Consultant will work with CDOT and the City to develop preliminary evaluation criteria and submit the criteria to FHWA for review. Established criteria will be used to evaluate and screen the list of potential preliminary alternatives.

b. Develop Alternatives

The Consultant shall develop an agreed number of alternatives from a universe of options and meaningful implementation phases, which will satisfy the operational requirements and goals of the project. When required, conceptual layouts will be developed for each alternative. The alternatives shall address the project goals and objectives, account for impacts and any necessary roadway improvements to the local street system within the study area. Each alternative will include a discussion of individual component routes within that alternative, their capacities, and traffic impacts including current and future local access points on the arterial and highway system in the study area to maintain local planning consistency.

The Consultant shall then identify the reasonable alternatives that could be applied on Wadsworth Boulevard.

The Consultant shall investigate lane configurations that satisfy the project's goals and objectives. Conceptual layouts will be developed for each alternative both in plan and general profile views.

These alternatives shall respond to projected design year traffic volumes as developed in the traffic study data collection. The Consultant will evaluate the impacts of each alternative concept and the degree that each accomplishes the goals and objectives of the study. The appropriateness of each alternative will be reviewed and evaluated by the City, CDOT, FHWA, and other jurisdictions as appropriate.

The Consultant shall complete an initial design of the alternatives decided upon by the City, CDOT, FHWA, and other jurisdictions as appropriate. General profile and cross sections analysis will be developed for all critical areas to analyze each designated alternative. Information is to include general cut and fill limits, ROW and easement requirements, necessary earthwork and structural construction requirements. The design parameters, such as design speed, maximum grades, and typical section will be determined at the beginning and used on each alternative. The Consultant shall prepare the

conceptual design for each lane configuration including alignments, construction detours that will be needed, and major structural requirements so that a conceptual cost estimate can be developed. The cost estimate is to include design costs, ROW identification and acquisition, and construction costs.

c. Screen Alternatives

The Consultant shall utilize a NEPA-appropriate screening process on the universe of alternatives to identify the feasible and significantly different alternatives, which will be later subject to a more detailed NEPA environmental assessment. The purpose of this screening is to eliminate the obviously infeasible alternatives or alternatives that do not meet the Purpose and Need. The Consultant shall develop NEPA-appropriate evaluation criteria and submit them for review and approval by the City, CDOT, and FHWA prior to beginning the screening process. The rationale for elimination shall be thoroughly discussed within the NEPA documentation for those alternatives that are eliminated from further consideration.

The No-Action Alternative must be defined and carried through the entire evaluation and assessment process. For each alternative that passes the screening process, the Consultant shall incorporate preliminary design to a level that clearly allows the identification of effects on each environmental area listed below. Unless otherwise indicated, the Consultant is responsible for all of the following PEL activities on each of the alternatives that pass the screening process:

A preliminary screening process will be used on the universe of alternatives to identify a limited number of feasible and significantly different alternatives, which will be subject to more detailed evaluation in the "Test Alternatives Analysis." The purpose of this screening is to eliminate the obviously infeasible or unsuitable alternatives. All feasible and significantly different options shall be carried forward into more detailed analysis. These feasible and significantly different screened alternatives are to be presented in the first public workshop, and the public's opinion on what issues should be addressed during the detailed analysis of these alternatives is to be solicited. The criteria used in the preliminary screening shall be developed jointly with the City, CDOT, FHWA, and other jurisdictions.

The Consultant shall perform a decision alternative analysis for each alternative. The decision alternative analysis shall utilize a decision matrix of compiled (data collection phase) information, using criteria developed and approved by the City, CDOT, FHWA, and other jurisdictions as appropriate. The decision matrix criteria shall include design components, cost (financial analysis), social-economic, and environmental concerns. The decision alternative matrix will be compiled to show the differences between each alternative corridor design in a clear fashion (to be understood by the general public).

Environmental (air, noise, water quality, open space, etc.), historic and archaeological impacts, cost, engineering feasibility, construction staging options, transportation impacts, transit impacts, design year level of service and other performance measures, socioeconomic impacts and community acceptability, consistency with and/or impact on adopted plans, urban design issues and opportunities, and phasing of improvements are examples of the considerations to be used in the screening process. The No-Build alternative must be carried through the entire evaluation and assessment process.

A limited number of design alternatives, will be described in a final design alternatives technical memorandum. For this limited set of alternatives, horizontal and vertical alignment studies, at a scale of 1"=200', will be conducted.

d. Preliminary Sketches

The Consultant shall develop preliminary sketch concepts of landscape/streetscape improvements along Wadsworth Boulevard. The Consultant shall develop plan and elevation drawings with urban design features, planting masses, and plan access and development potential of adjacent areas.

e. Before and After Views

The Consultant shall develop a perspective view of each alternative in a "before" and "after" illustration of existing features and proposed design.

f. Test Alternatives Analysis

Following the development of the short-list of alternatives, the Consultant shall perform a comprehensive test of each of the short-listed alternatives. This test shall utilize a decision process, which includes a compilation of all appropriate criteria. In addition to the socioeconomic and environmental concerns, the decision criteria shall include design standards. The criteria will be compiled in coordination with other activities. Following that, a decision matrix shall be created which combines a list of the alternatives under consideration with the results of the test with each criterion. The alternatives shall then be further developed with initial design and financial analysis.

g. Initial Design of Alternatives

Once the alternatives have been tested, general profile and cross section studies will be developed for critical areas to analyze the designated alternatives. This information shall be sufficient to determine general cut and fill limits, right-of-way and easement requirements, earthwork and structural requirements. Design parameters such as design speeds, maximum grades, typical sections, intersection and pedestrian routing will be determined at the beginning of the study.

The conceptual designs for the roadways, detours, phasing, and major structures will be completed sufficiently so that preliminary cost estimates can be developed and the satisfaction of pertinent design criteria can be demonstrated. Necessary variances will be identified.

The following shall be available following completion of the design:

- i. Plan and profile of roadways and detours
- ii. Typical sections of roadways and detours
- iii. Preliminary hydraulic recommendations
- iv. Preliminary right-of-way requirements
- v. Recommended construction sequence
- vi. Phasing opportunities

h. Financial Analysis of Alternatives

i. Cost Estimate

A total cost estimate will be developed in whole or phases of improvement if feasible. Preliminary and final engineering, ROW acquisition, construction engineering, construction, and maintenance for the design life will be analyzed.

ii. Funding Package

A funding package will be developed. The funding sources necessary to design, acquire, construct and maintain the project will be identified and evaluated for appropriateness and feasibility.

B. Feasible Alternatives Recommendation

_____ X

A "Final Alternatives Report" will be submitted which documents the analysis process. This shall include the final staging plan, socioeconomic and environmental concerns, utility conflicts, drainage, and right-of-way requirements, and total cost for the recommended alternatives. The Consultant is responsible for ensuring that the recommended alternative(s) complies with applicable standards and criteria. Where appropriate, the required variances will be identified.

A draft for the report shall be submitted for review and comment prior to the submittal of the final report.

C. Interim Improvements Operational Analysis

_____ X

The Consultant shall complete the tasks listed in the Alternatives Analysis section on the previous pages in order to provide feasible alternatives to recommend and prioritize operational improvements for the existing corridor that may be implemented in phases that do not preclude the ultimate configuration. These early action items should be developed with costs and prioritized for implementation.

4 **SYSTEM/PROJECT FEASIBILITY STUDY AND FEASIBILITY STUDY REPORT**

As part of the PEL process, the Consultant shall prepare a system and project feasibility study. This study shall be in accordance with CDOT's most recent policies. The Consultant shall make clear in any materials prepared as an official record and for distribution, that the NEPA process shall be followed, and that the Consultant and the Agencies have no preferred alternative which will influence their activities, to reach an appropriate conclusion under NEPA.

A. System Feasibility Study _____ X

The system feasibility study must consider, as a minimum, alternate routes, accident history, congestion, effects on the adjacent local streets, and economic development impact. Key information from the data collection and alternatives analysis will be included in the feasibility study document. A draft study will be reviewed by the City, CDOT, FHWA, and other jurisdictions as appropriate and then submitted to the City for review and comment prior to final submission. If it is determined that the system feasibility study will go to the CDOT Transportation Commission separately from the project feasibility study, the Consultant shall prepare the needed documentation and graphics, and present for approval before the Transportation Commission.

B. Project Feasibility Study _____ X

Either in conjunction with or following approval of the system feasibility study, a project level feasibility study shall be completed. In addition to refinement of items identified in the system feasibility study, the project feasibility study will determine precise location and extent of traffic impacts to the state transportation system. It will identify all necessary improvement alternatives along Wadsworth Boulevard at a conceptual design level, as well as any improvements to the local street system to accommodate the anticipated traffic. Preliminary engineering will be completed to the 20% to 30% level and total costs will be outlined at that level. Base mapping will be to one (1) foot contour interval resolution. All design standards will be addressed and agreed upon by the City, CDOT and FHWA. This feasibility study will be submitted to the City for review, and summarized in the Planning and Environmental Linkage Report.

C. Feasibility Study Report _____ X

This report will be prepared in accordance with CDOT's most recent policies to obtain approval from FHWA for Wadsworth Boulevard. The Consultant shall make clear in any materials prepared as an official record and for distribution, that the NEPA process shall be followed, and that the Consultant and the Agencies have no preferred alternative which will influence their activities, to reach an appropriate conclusion under NEPA. The report will include, at a minimum:

- a. Project purpose
- b. Relationship to other roadway improvement plans and programs
- c. Distances to and size of communities or activities directly served
- d. Description of existing and proposed access:
 - i. Configuration of the existing and proposed street
 - ii. Alternatives that have been considered-description and layout
 - iii. Description of any substandard features, with justification
 - iv. Main line and crossroad traffic volumes (ADT), (DHV), including turning movements, for current year, implementation year, and design year
 - v. Number of main line and crossroad lanes; including any auxiliary lanes or C-D roads
- e. Traffic and operational analysis (HCM latest version with assumption for PHF, vehicle mix, etc.) including crossroads and other roads and streets as required to assure their ability to effectively collect and distribute traffic from the new access. Traffic simulation will likely be needed to present information and allow for analysis of the alternatives

- f. Any other information that might help explain and/or support the proposal, e.g., cost-effectiveness analysis, source of funding, implementation schedule, etc.
- g. Plan and profile, street geometrics, typical sections, roadway alignments
- h. Preliminary signing plan
- i. Construction phasing

SECTION 8

CONTRACT CONCLUSION (CHECKLIST)

1 SUPPLEMENTAL WORK

It is anticipated that this contract may be supplemented for additional study and/or design efforts above any assumed quantities noted in the current contract scope. Additional efforts will require City approval prior to beginning any work efforts.

2 CONTRACT COMPLETION

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

- A. Periodic Reports
- B. Billings
- C. Meeting Minutes
- D. Project Management Plan
- E. Project Schedule
- F. Conceptual Design
- G. Traffic Model
- H. Feasibility Study report
- I. Final Alternatives Report
- J. System Feasibility Study
- K. Preliminary Sketches
- L. Before and After Views
- M. Conceptual Design Plans
- N. Cost estimate
- O. Funding Package
- P. Correspondence with Agencies, Entities, and Public
- Q. Safety Assessment

APPENDICES

- A. REFERENCES
- B. DEFINITIONS
- C. PEL QUESTIONNAIRE

APPENDIX A

REFERENCES

- 1 **AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) PUBLICATIONS** (using latest approved versions):
 - A. A Policy on Geometric Design of Highways and Streets
 - B. Guide for Design of Pavement Structures
 - C. Guide for the Design of High Occupancy Vehicle and Public Transfer Facilities
 - D. Guide for the Development of Bicycle Facilities
 - E. Guide for the Planning, Design, and Operation of Pedestrian Facilities
 - F. Standard Specifications for Transportation Materials and Methods of Sampling and Testing – Part 1, Specifications and Part II, Tests
 - G. Highway Design and Operational Practices Related to Highway Safety
 - H. Roadside Design Guide
- 2 **COLORADO DEPARTMENT OF TRANSPORTATION PUBLICATIONS** (using latest approved versions):
 - A. CDOT Design Guide (all volumes)
 - B. Project Development Manual
 - C. Erosion Control and Storm Water Quality Guide
 - D. Field Log of Structures
 - E. Cost Data Book
 - F. Drainage Design Manual
 - G. CDOT Quality Manual
 - H. CDOT Survey Manual
 - I. CDOT Field Materials Manual
 - J. CDOT Design Guide, Computer Aided Drafting (CAD)
 - K. Standard Plans, M & S Standards
 - L. Standard Specifications for Road and Bridge Construction and CDOT Supplemental Specifications
 - M. Item Description and Abbreviations (with code number) compiled by Engineering Estimates and Marked Analysis Unit, CDOT
 - N. Right-of-Way Manual, Chapter 2, Plans and Descriptions Procedures and General Information
 - O. The State Highway Access Code
 - P. Utility Manual
 - Q. Interactive Graphics System Symbol Table

- 3 **CDOT PROCEDURAL DIRECTIVES** (using latest approved versions):
- A. No. 400.2 Monitoring Consultant Contracts
 - B. No. 501.2 Cooperative Storm Drainage System
 - C. No. 514.1 Field Inspection Review (FIR)
 - D. No. 516.1 Final Office Review (FOR)
 - E. No. 1217a Survey Request
 - F. No. 1304.1 Right-of-Way Plan Revisions
 - G. No. 1305.1 Land Surveys
 - H. No. 1700.1 Certification Acceptance (CA) Procedures for Location and Design Approval
 - I. No. 1700.3 Plans, Specifications and Estimates (PS&E) and Authorization to Advertise for Bids under Certifications Acceptance (CA)
 - J. No. 1700.5 Local Entity/State Contracts and Local Entity/Consultant Contracts and Local Entity/R.R. Contracts under CA
 - K. No. 1700.6 Railroad/Highway Contracts (Under Certification Acceptance)
- 4 **FEDERAL PUBLICATIONS** (using latest approved versions):
- A. Manual on Uniform Traffic Control Devices
 - B. Highway Capacity Manual
 - C. Urban Transportation Operations Training – Design of Urban Streets, Student Workbook
 - D. Reference Guide Outline – Specifications for Aerial Surveys and Mapping by Photogrammetric Methods for Highways
 - E. FHWA Federal-Aid Policy Guide
 - F. Technical Advisory T6640.8A
 - G. U.S. Department of Transportation Order 5610.1E
 - H. Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques
 - I. ADAAG Americans With Disabilities Act Accessibility Guidelines
- 5 **TRANSPORTATION RESEARCH BOARD:**
- A. Access Management Manual
- 6 **CITY ADOPTED PLANS:**
- A. Repositioning Wheat Ridge – Neighborhood Revitalization Strategy
 - B. Envision Wheat Ridge
 - C. Wadsworth Corridor Subarea Plan
 - D. 38th Avenue Corridor Plan
 - E. Economic Development Strategic Plan
 - F. Wadsworth Boulevard Corridor Redevelopment Plan

- G. 38th Avenue Corridor Redevelopment Plan
- H. Town Center Project URP
- I. Bicycle and Pedestrian Master Plan
- J. Streetscape Design Manual
- K. Parks and Recreation Master Plan

APPENDIX B

DEFINITIONS

1	AASHTO	American Association of State Highway & Transportation Officials
2	ADT	Average two-way 24-hour Traffic in Number of Vehicles
3	ATSSA	American Traffic Safety Services Association
4	ADAAG	Americans with Disabilities Accessibility Act Guidelines
5	BLM	Bureau of Land Management
6	CA	Contract Administrator. The City staff responsible for the satisfactory completion of the contract by the consultant.
7	CBC	Concrete Box Culvert
8	CDOT	Colorado Department of Transportation
9	City/PM	City Project Manager – The City staff responsible for the day to day direction and Consultant coordination of the design effort.
10	CDOT/STR	Colorado Department of Transportation Structure Reviewer – The CDOT Engineer responsible for reviewing and coordinating major structural design
11	CDPHE	Colorado Department of Public Health and Environment
12	CEQ	Council on Environmental Quality
13	COGO	Coordinate Geometry Output
14	CONSULTANT	Consultant for this project
15	C/PM	Consultant Project Manager – The Consultant staff responsible for combining the various inputs in the process of completing the project plans and managing the Consultant design effort.
16	DEIS	Draft Environmental Impact Statement
17	DHV	Future Design Hourly Volume (two-way unless specified otherwise)
18	DRCOG	Denver Regional Council of Governments
19	EA	Environmental Assessment
20	EIS	Environmental Impact Statement
21	ESAL	Equivalent Single Axle Load
22	ESE	Economic, Social and Environmental
23	FEIS	Final Environmental Impact Statement
24	FEMA	Federal Emergency Management Agency
25	FHPG	Federal Aid Highway Policy Guide
26	FHWA	Federal Highway Administration
27	FIPI	Finding In Public Interest

28	FIR	Field Inspection Review
29	FONSI	Finding of No Significant Impact
30	FOR	Final Office Review
31	GPS	Global Positioning System
32	MAJOR STRUCTURES	Bridges and culverts with a total clear span length greater than twenty feet. This length is measured along the centerline of roadway for bridges and culverts, from abutment face to abutment face, retaining structures are measured along the horizontal distance along the top of the wall. Structures with exposed heights at any section over five feet and total lengths greater than a hundred feet as well as overhead structures including (bridge signs, cantilevers and butterflies extending over traffic) are also considered major structures.
33	MS4	Municipal Separate Storm Sewer System
34	NEPA	National Environment Policy Act
35	NGS	National Geodetic Survey
36	NICET	National Institute for Certification in Technology
37	NOAA	National Oceanic and Atmospheric Administration
38	PE	Professional Engineer registered in Colorado
39	PM	Program Manager
40	PLS	Professional Land Surveyor registered in Colorado
41	PRT	Project Review Team
42	PS&E	Plans, Specifications and Estimate
43	PROJECT	The work defined by this scope
44	ROW	Right-of-Way: A general term denoting land, property, or interest therein, usually in a strip acquired for or devoted to a highway
45	RTD	Regional Transportation District
46	T/E	Threatened and/or Endangered Species
47	SH	State Highway Numbers
48	UDFCD	Urban Drainage and Flood Control District
49	USCOE	United States Army Corp of Engineers

Note For other definitions and terms, refer to Section 101 of the CDOT Division of Highways Standard Specifications for Road and Bridge Construction and the CDOT Design Guide.

APPENDIX C

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 screen process; alternative screening 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. 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**

What is the name of the PEL document and other identifying project information (e.g. sub-account or STIP numbers)?

- A. Provide a brief chronology of the planning activities (PEL study) including the year(s) the studies were conducted.
- B. 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.)
- C. Who was the sponsor of the PEL study (CDOT, Local Agency, Other)?
- D. Who was included on the study team (Name and title of agency representatives, consultants, etc.)?
- E. 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**

Did you use NEPA-like language? Why or why not?

- A. What were the actual terms used and how did you define them (Provide examples or list)?
- B. How do you see these terms being used in NEPA documents?
- C. 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 USCOE, and USFWS.
- D. How should the PEL information below be presented in NEPA?

3. AGENCY COORDINATION

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.

- A. What transportation agencies (e.g. for adjacent jurisdictions) did you coordinate with or were involved in the PEL study?
- B. What steps will need to be taken with each agency during NEPA scoping?

4. PUBLIC COORDINATION

Provide a synopsis of your coordination efforts with the public and stakeholders.

5. CORRIDOR VISION/PURPOSE AND NEED

What was the scope of the PEL study and the reason for doing it?

- A. Provide the corridor vision, objectives, or purpose and need statement.
- B. 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

What types of alternatives were looked at (Provide a one or two sentence summary and reference document.)?

- A. How did you select the screening criteria and screening process?
- B. 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)
- C. Which alternatives should be brought forward into NEPA and why?
- D. Did the public, stakeholders, and agencies have an opportunity to comment during this process?
- E. Were there unresolved issues with the public, stakeholders and/or agencies?

7. PLANNING ASSUMPTIONS AND ANALYTICAL METHODS

What is the forecast year used in the PEL study?

- A. What method was used for forecasting traffic volumes?
- B. Are the planning assumptions and the corridor vision/purpose and need statement consistent with the long-range transportation plan?
- C. 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,

In the PEL study, at what level of detail was the resource reviewed and what was the method of review?

- A. Is this resource present in the area and what is the existing environmental condition for this resource?
- B. What are the issues that need to be considered during NEPA, including potential resource impacts and potential mitigation requirements (if known)?
- C. How will the data provided need to be supplemented during NEPA?

- D. 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.

9. OUTCOMES

- A. Were cumulative impacts considered in the PEL study? If yes, provide the information or reference where it can be found.
- B. Describe any mitigation strategies discussed at the planning level that should be analyzed during NEPA.
- C. 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?
- D. Are there any other issues a future project team should be aware of? 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.

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APPENDIX C: EXAMPLE FHWA AND CDOT ACCEPTANCE LETTERS

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

Colorado Division

August 26, 2013

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

Steve Olson
Region 1 North Program Engineer
Colorado Department of Transportation
2000 S. Holly Street
Denver, CO 80222

Subject: I-70 and Kipling Planning and Environmental Linkages (PEL)

Dear Mr. Olson:

This letter is to acknowledge the completion of the PEL study initiative undertaken by the Colorado Department of Transportation (CDOT), and David Evans and Associates for the I-70 and Kipling Interchange. We appreciate and commend the efforts the team has undertaken to conduct this corridor planning study 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 July 2013 provides a good summary of the work completed in PEL study and the information that will be needed once projects enter into the NEPA process. In addition, the Alternatives Development and Analysis Report and the PEL Report provide good documentation that can support the next steps of the NEPA process. The strengths of the corridor study include a robust screening process, meaningful local government and public involvement throughout the process, and a detailed look at phasing the recommended alternatives.

CDOT must make a critical decision regarding the next steps for improvements at this interchange. Based on the findings of the PEL study, CDOT could implement interim improvements that may not be compatible with long term improvements but offer immediate operational benefits, phase some of the long term improvements, or implement a solution that would improve the interchange for the long term. FHWA recognizes that this critical decision must be made in light of available funding or forecasted funding.

If you have any questions, please feel free to contact Monica Pavlik, Senior Operations Engineer, at 720-963-3013 or by e-mail at monica.pavlik@dot.gov.

Sincerely,

John M. Cater, P.E.
Division Administrator

By: Monica Pavilk
Senior Operations Engineer

Cc: Kirk Webb, CDOT, Region 1
Chuck Attardo, CDOT, Region 1



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

Colorado Division

October 27, 2014

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

Mr. Tony DeVito
CDOT Region 1, Transportation Director
Colorado Department of Transportation
2000 South Holly Street
Denver, CO 80222

**Subject: I-225 (Yosemite Street to I-25) Planning and Environmental Linkages (PEL)
Study**

Dear Mr. DeVito:

This letter is to acknowledge the completion of the I-225 (Yosemite Street to I-25) PEL Study 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 completed FHWA PEL Questionnaire (Appendix B of the PEL document) provides a good summary of the work completed in the PEL study and the information that will be needed once the project is funded and enters into the NEPA process. At that time it will be necessary for FHWA to meet with CDOT to determine the scope of the NEPA study including the extent to which this PEL study can be used to supplement or replace certain milestones in the NEPA process.

We appreciate the opportunity to comment on and provide input to the development of this PEL. If you have any questions regarding this letter, please feel free to contact Dahir Egal at 720-963-3007.

Sincerely,

John M. Cater, P.E.
Division Administrator

cc: Carrie DeJiacomo, R1 South Program Engineer
Jordan Rudel, CDOT Region 1
Jerome Estes, CDOT Region 1
Troy Halouska, CDOT DTD
Dahir Egal, FHWA



APPENDIX D: EXAMPLE FULL PEL STUDY TABLE OF CONTENTS

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COLORADO

Department of
Transportation