

Problem Statement and Purpose & Need **TRAINING**

Date, 2010

PS-P&N Training Outline

- Introduction
- PS Basics- why, what, who, when, how
- P&N Basics- why, what, who, when, how
- Crafting a PS or P&N
- Wrap Up

PS-P&N Training

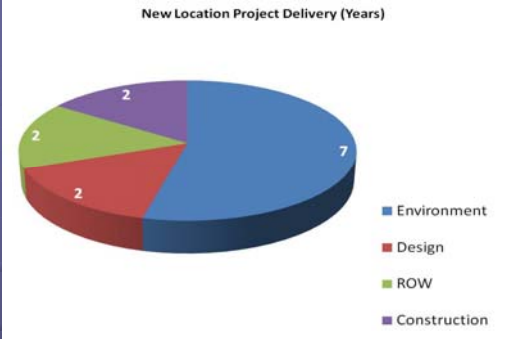
PS-P&N Learning Outcomes

- Be Able to Craft A Problem Statement
- Be Able to Craft a Purpose & Need Statement
- Understand the appropriate use of each

PS-P&N Training

What's the Opportunity?

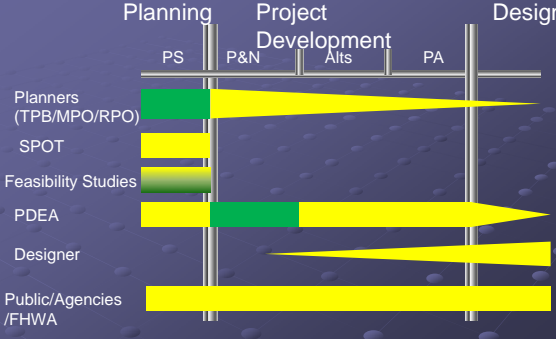
New Location Project Delivery (Years)



Category	Value
Environment	7
Design	2
ROW	2
Construction	2

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Why Should I Care About This Stuff?



Planning Project Development Design

PS P&N Alts PA

Planners (TPB/MPO/RPO)

SPOT

Feasibility Studies

PDEA

Designer

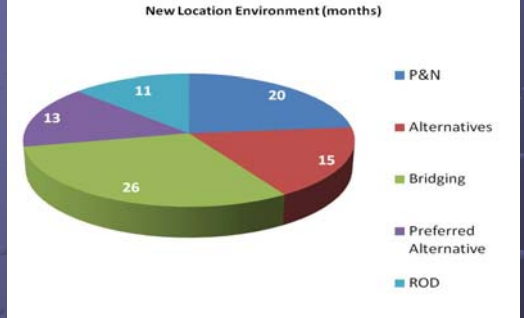
Public/Agencies /FHWA

Key:
■ = my PS or P&N responsibility
■ = my PS or P&N interest

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What's the Opportunity?

New Location Environment (months)



Category	Value
P&N	20
Alternatives	15
Bridging	26
Preferred Alternative	13
ROD	11

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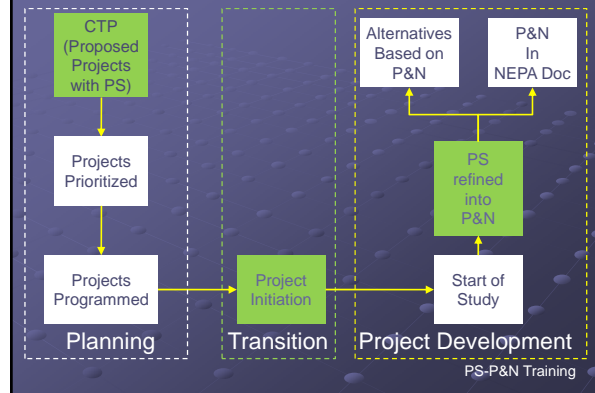
Who Supports This Initiative?

Interagency Leadership Team (ILT)

- NCDOT
- FHWA
- USACOE
- DENR
- USFWS
- EPA
- National Marine Fisheries Service
- Dept. of Commerce
- Dept. of Cultural Resources
- NC WRC

PS-P&N Training

What Is The New Process?



PS-P&N Relation to Other Initiatives

Integration

Effort to improve the linkage of long range planning to project development

Streamlining

Effort to examine the Merger process to determine how it can be conducted more efficiently

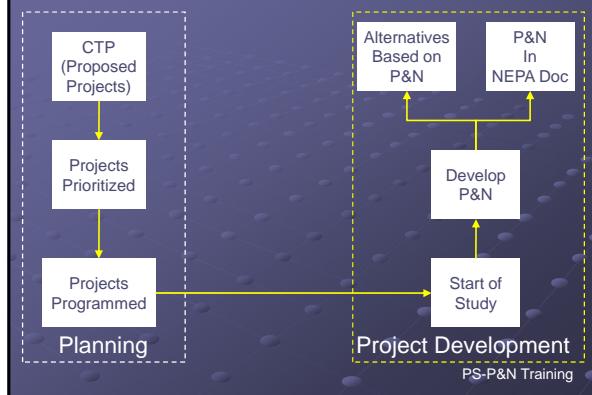
PS-P&N Training

PS Basics

- Why
- What
- Who
- When
- How

PS-P&N Training

What Happens Currently?



PS Basics

WHY, what, who, when, how

Purpose

- Communicate the context, concept and justification for proposed projects (all modes) in a CTP

Intent

- Form substantial core of P&N
- Save time in preparing and/or agreeing to the purpose and need in project development

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PS Basics

WHY, what, who, when, how

FHWA "Linking Planning & NEPA"

- SAFETEA-LU: Statewide Transportation Planning and Metropolitan Transportation Planning (23 USC Section 134, 135)
- Appendix A of 23 CFR Part 450: Linking the Transportation Planning and NEPA Processes
- Environment and Planning Linkage Processes Legal Guidance

PS-P&N Training

Components of a Full PS

- Identified Problem
 - Justification of Need
 - Community Vision and Problem History
- CTP Project Proposal
 - Project Description and Overview
 - Natural & Human Environmental Context
 - Relationship to Land Use Plans
 - Linkages to Other Plans and Proposed Project History
 - Multi-modal Considerations
 - Public/ Stakeholder Involvement

PS-P&N Training

PS Basics

WHY, what, who, when, how

- 23 CFR 450.212, .318, & Appendix A
 - "The results or decisions of these transportation planning studies may be used as part of the overall project development process consistent with NEPA..."
- P&N or goals & objective statements
- General travel corridor and/ or mode(s) definition
- Basic description of environmental setting
- Preliminary identification of environmental impacts & mitigation

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Components of a Minimum PS

Include:

- Concise description of the problem
- Primary purpose(s) & goal(s) to be accomplished
- Describe the concept of the proposed project
- Briefly, any known supporting information (e.g. other applicable elements from Full PS)

PS-P&N Training

PS Basics

why, WHAT, who, when, how

- Full PS
- Minimum PS
- PS that References a P&N Underway or Completed

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PS Referencing P&N Underway

Include:

- Concise description of the primary goals the proposed project is expected to accomplish
- Summary of the concept and purpose
- A reference to the P&N underway

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PS Basics

why, **WHAT**, who, when, how

Criteria for selecting projects for Full PS:

- Time Frame
 - 5-year Work Program and STIP*
 - 10-year Work Program
 - Closest interim years, project priorities list
- Scope
 - major new location, major multi-lane widening, major projects other modes

PS-P&N Training

PS Basics

why, what, who, when, **HOW**

Transfer & Use

- For CTP: Conceptualize/ document problems & Link problems to proposed solutions
- For prioritization: informs relative needs
- For project initiation: provides PDEA with project information
- For P&N: foundation of P&N

PS-P&N Training

PS Basics

why, what, **WHO**, when, how

- Developed by NCDOT-TPB or MPOs, in consultation with RPOs & municipal/ county staff
- Full PS: TPB will request review by PDEA
- Coordinate with Agencies & Public as part of the CTP process

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PS Review

- Why
- What
- Who
- When
- How

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PS Basics

why, what, who, **WHEN**, how

- During CTP development (documented as part of CTP report)
- Upon Request by PDEA (if CTP has less than full PS & for areas TPB has provided planning assistance in the past)

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Questions?

"There's more than one way to look at a problem, and they all may be right"
--Norman Schwarzkopf

PS-P&N Training

P&N Basics

- Why
- What
- Who
- When
- How

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Why P&N?

- CEQ regulations for an EIS require:
"The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action."
- CEQ regulations for an EA require:
"Shall include brief discussions of the need for the proposal..."

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Why P&N?

National Environmental Policy Act (NEPA)

"...To declare a national policy which will encourage productive and enjoyable harmony between man and his environment..."

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What: Need

- Describes key problem(s) & causes
- Provides the factual & quantifiable foundation for the purpose statement
- Establishes evidence of current or future transportation problems or deficiencies
- Establishes and justifies logical termini

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Why P&N?

NEPA applies to Federal **discretionary** actions



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What: Purpose

- States clearly and succinctly why the project is being proposed
- Articulates positive intended outcomes
- Presents objectives to address the need

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What: Primary v. Secondary Purpose

To communicate the full range of factors considered in decision-making:

A **primary purpose** is a “driver” of the project (a fundamental reason for the project)

A secondary purpose (“**other desirable outcome**”) is desirable, but not a core purpose

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Who Develops P&N?

- Responsibility rests with the **lead Federal agency** preparing the NEPA document
- For **Federal-aid projects**, the lead Federal agency is **FHWA (NCDOT through Stewardship Agreement)**

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Exercise

Which alternative(s) meet PS or P&N?

	PP#1	PP#2	ODO#1	ODO#2
Alt 1	N	Y	Y	N
Alt 2	Y	Y	N	Y
Alt 3	Y	Y	N	N
Alt 4	Y	N	Y	Y

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Who Do We Coordinate With for P&N?

- CEQ regulations: no requirement for agencies/public
- Scoping: forum for agencies/public input
- SAFETEA-LU Section 6002: “opportunity for involvement” for agencies/public

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What: Purpose

Avoid stating the purpose as a solution:

- “The purpose is to widen the road to 4 lanes”
- “The purpose is to replace the bridge”

Avoid the “kitchen sink” approach

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Who Do We Coordinate With for P&N?

- SAFETEA-LU Section 6002: joint lead agencies (JLA) share FHWA's authority to define the P&N
- **Disagreement** between JLA must be resolved
- JLA consider input from agencies/public, but ultimately decide on P&N

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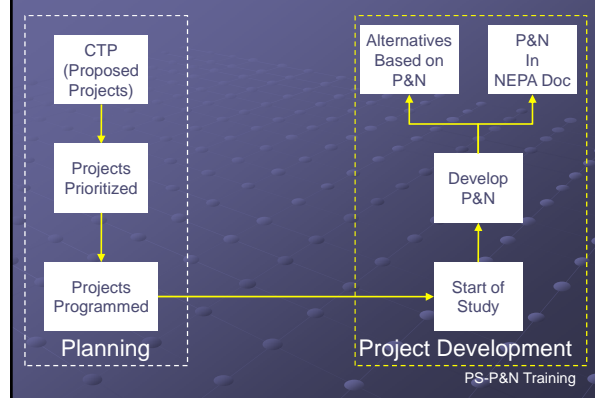
Who Do We Coordinate With for P&N?



From Council on Environmental Quality:
 "In the case of a proposal intended to address transportation needs, joint lead or cooperating agencies should afford substantial deference to the DOT agency's articulation of purpose and need"

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What Happens Currently?



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Who Do We Coordinate With for P&N?

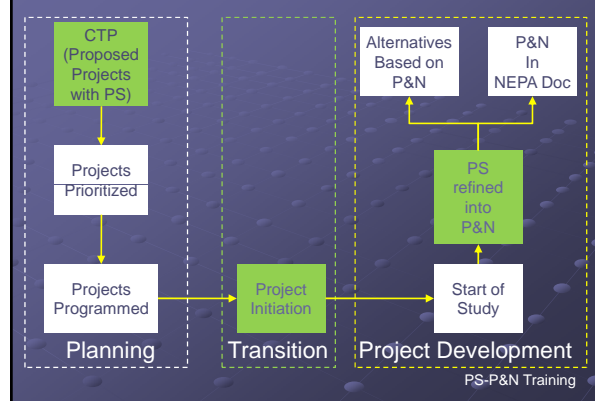
FHWA and FTA observe:

other Federal agencies
 "should only raise questions regarding our P&N statements when those questions relate to substantive or procedural problems (including omission of factors) important to that agency's independent legal responsibilities."



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What Is The New Process?



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Who Do We Coordinate With for P&N?

The Merger process calls for "concurrency" by all agencies represented on individual project teams at various environmental milestones (with P&N being the first milestone)

"Concurrency" is defined as:

"I do not object to the proposed action based on the laws and regulations of my program and agency."

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How is P&N used?

- Avoid an ill-conceived project
- Share understanding of the problems
- Define a project's scope
- Guide development & evaluation of alternatives
- Allow decisions to be legally defensible
- Justify impacts and spending of funds

PS-P&N Training

P&N Review

- Why
- What
- Who
- When
- How

PS-P&N Training

Crafting a PS-P&N Statement

Get **SMART**!

- S**pecific
- M**easurable
- A**greed
- R**ealistic
- T**ime-bound



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PS-P&N: What's In It For Me?

- Citizens
- Local Planner (MPO/RPO)
- NCDOT TPB
- Funding Decision-makers
- NCDOT Project Manager
- Agency

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Exercise

Assess these PS-P&N Purposes
(use the **SMART** principles)

- The purpose is to reduce congestion
- The purpose is to widen the road
- The purpose is to provide a travel speed of at least 45 mph in the design year

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So What's The Difference?

- Data: possible differences in level of detail and/ or age
- Public/ Agency Involvement: only required for P&N for EIS, no formal agreement or concurrence on PS
- PS contains additional information, particularly the CTP Project Proposal section

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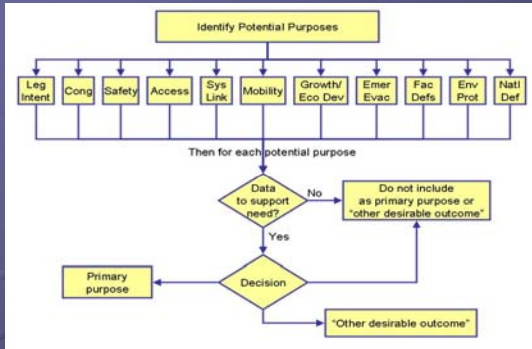
Questions?

"Always get married early in the morning. That way, if it doesn't work out, you haven't wasted a whole day"
--Mickey Rooney

"Always get P&N early in the process. That way, if it doesn't work out, you haven't wasted a couple of years"
--unknown

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So Which One(s) Do I Pick?



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Congestion

What is Congestion?

- TRB: "Travel time in excess of that normally incurred under light or free-flow conditions"
- Wikipedia: "a state of excessive accumulation or overfilling or overcrowding"
- Dictionary.com: "overcrowding, clogging"

Find a definition for your project!

If you can't define it, you won't know if you've achieved it!

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Possible Purposes

Transportation

- Congestion
- Safety
- Facility Deficiencies
- Access
- System Linkage
- Mobility
- Emergency Evacuation

Other Goals/Objectives

- Legislative Intent
- Environmental Protection
- Growth/Economic Dev.
- National Defense/Security

PS-P&N Training

Congestion

Possible Sources for Definition:

- MPO LRTP
- TMA CMP
- CTP
- National Guidelines
- State Guidelines/Standards/Policies/Plans
- Highway Capacity Manual
- FHWA NC Division office determinations
- Local government standards/policies/guidelines

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Congestion



PS-P&N Training

Congestion

Example Performance Measures:

- Speed (peak hour/period)
- Delay (peak hour/period)
- LOS (peak hour/period)
- V/C Ratio (peak hour/period)
- VMT
- Density/Headway
- Signal Cycle Failure
- Queue Length
- Vehicle Hours of Travel

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Congestion

Purpose: "To improve the capacity of existing I-240 west of Asheville to accommodate the existing and forecasted (2030 design year) traffic in this growing area."

Performance Criteria: "since the project will be part of the Interstate System, it should be designed to achieve LOS D or better for the type and volumes of traffic anticipated for the twenty-year period beyond the time construction is authorized by FHWA"

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Safety

True or False?
Any improvement we do to a facility will make the facility safer



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Congestion

Source: "NCDOT Policy on Desirable Levels of Service for State Highway System Streets and Highways in Urban Areas" (1997)

	Avg. Speed (suburban)	Avg. Speed (Intermediate)	Avg. Speed (CBD)
Primary Freeway	50-60	50-55	45-55

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Safety

Is there a safety problem?

Road crash rate v. statewide averages

Critical Crash Rate (CCR)



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Congestion

Rate these examples (Good, Bad, OK)

- The purpose is to widen US 5 to six lanes.
- The purpose is to eliminate congestion on US 5.
- The purpose is to reduce congestion on US 5.
- The purpose is to achieve LOS D on US 5.
- The purpose is to achieve a minimum travel speed of 45 mph in the design year for US 5.

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Safety

CCR = A statistical tool that assists in screening for high crash locations by utilizing a confidence interval that can be adjusted (up or down) to accommodate the needs of the safety program





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Safety

How to define?

- overall
- particular type/severity
- rate/number/percent










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Safety

Countermeasure Potential Effectiveness

Countermeasure: Install a traffic signal	
<u>Crash Pattern Affected</u>	<u>Percent Reduction</u>
Total Crashes	22
Total Angle Crashes	65

<h1>Safety</h1> <p>What is the crash pattern?</p>		
 <p>SIDESWIPED AND HEAD-ON CRASHES</p>	 <p>RUN OFF ROAD CRASHES</p>	 <p>REAR-END CRASHES</p>
 <p>DRIVEWAY CRASHES</p>	 <p>PARKED/PARKING VEHICLE CRASHES</p>	 <p>FIXED OBJECT CRASHES</p>
 <p>PEDESTRIAN CRASHES</p>	 <p>NIGHT CRASHES</p>	 <p>WET CRASHES</p>

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Safety: Do's and Don'ts

- Do consult w/ NCDOT Safety Planning Group
- Do base analysis on accepted engineering practices
- Don't include safety w/o documented crash data
- Don't add safety because it "sounds good"
- Don't add safety to increase justification
- Don't forget to consider unintended consequences

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Safety

<u>Possible Cause</u>	<u>Countermeasure</u>
Slippery Pavement	Overlay existing pavement Provide adequate drainage Groove existing pavement Reduce speed limit "Slippery When Wet" signs
Poor Delineation	Install pavement markings Install roadside delineators Install advance warning signs

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Safety

Rate these examples (Good, Bad, OK)

- *The purpose is to improve safety on US 5.*
- *The purpose is to reduce crashes on US 5.*
- *The purpose is to reduce angle crashes on US 5.*
- *The purpose is to eliminate crashes on US 5.*
- *The purpose is to achieve a minimum 20% reduction of crashes on US 5.*

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Facility Deficiencies



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Facility Deficiencies

Rate these examples (Good, Bad, OK)

- The purpose of this project is to eliminate the "deficient" rating of the bridge.
- The purpose is to replace the bridge.
- The purpose of this project is to achieve minimum acceptable pavement standards.
- The purpose is to bring the roadway geometry up to current design standards.

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Facility Deficiencies

Physical characteristics of a facility that are below the desired performance

- Substandard geometrics
- Load limits on structures
- Inadequate cross-sections
- High maintenance costs



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Access



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Facility Deficiencies

Possible information sources:

- Pavement Management System
- Bridge Management System
- Maintenance Management System
- Roadway Design Manuals and Guidelines
- Structure Standards
- Access Management Policy



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Access

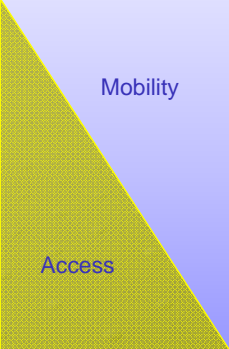
Assume a congested two-lane undivided road
A four-lane divided facility is proposed

Is access improved? For which users?
Is access restricted? For which users?



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Access



Interstate System:
highest mobility/lowest access

Other freeways/controlled access:
Higher mobility/lower access

Arterials:
high mobility/low access

Collectors:
Lower mobility/higher access

Local Roads:
Lowest mobility/highest access

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Access

Rate these examples (Good, Bad, OK)

- *The purpose is to improve access on I-40.*
- *The purpose is to increase accessibility to RTP.*
- *The purpose is to provide transportation access to the proposed business park.*

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Access

For an Interstate project:

- Operation and safety is paramount
- New access points will never improve the operation and safety of the Interstate

Do not propose access as a primary purpose or "other desirable outcome"

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System Linkage



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Access

For non-Interstate projects:

Determine whether access is the root cause of the problem (usually it's congestion or facilitating economic development)

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System Linkage

Definition

Linking two or more:

- Existing transportation facilities
- Modal facilities
- Geographic areas
- Regional traffic generators

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System Linkage

Rate these examples (Good, Bad, OK)

- *The purpose is to link I-40 and I-74.*
- *The purpose is to link the roadway network with the proposed passenger rail station.*
- *The purpose is to link the mainland transportation system with the Outer Banks transportation system.*

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Mobility

What is Mobility?

- Connecting more people and vehicles in less time with their work, school, community services, marketplaces, and each other
- FHWA Planning Glossary: “the ability to move or be moved from place to place”
- Movement of people and goods
- Other?

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Mobility



PS-P&N Training

Mobility

Identify sources to support mobility in P&N:

- Long Range Transportation Plan/ Comprehensive Transportation Plan
- State transportation plans
- Local government transportation plans



PS-P&N Training

Mobility

What is Mobility?

- Connecting more people and vehicles in less time with their work, school, community services, marketplaces, and each other
- FHWA Planning Glossary: “the ability to move or be moved from place to place”
- Movement of people...

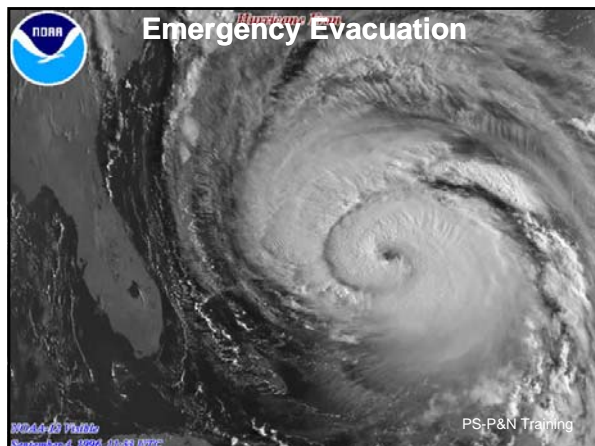
PS-P&N Training

Mobility

Rate these examples (Good, Bad, OK)

- *The purpose is to improve the mobility of freight*
- *The purpose is to improve the mobility along Corridor X*
- *The purpose of this project is to improve mobility*
- *The purpose is to improve the mobility of motorized vehicles along Corridor X during the PM peak period*

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Emergency Evacuation

Identify total v. partial evacuation need

Don't forget about:

- Feeder & Receiver routes
- Disabled vehicles
- Motorist facilities (gas, restrooms, food, etc.)

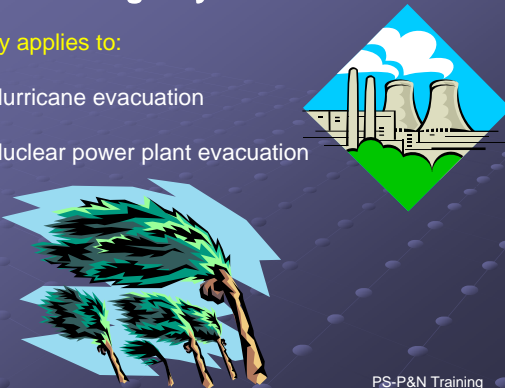


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Emergency Evacuation

Only applies to:

- Hurricane evacuation
- Nuclear power plant evacuation



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Emergency Evacuation

Rate these examples (Good, Bad, OK)


- *The purpose is to improve hurricane evacuation.*
- *The purpose is to achieve the 18-hour standard for hurricane evacuation of Pea Island.*
- *The purpose is to reduce hurricane evacuation clearance times for Pea Island.*
- *The purpose is to widen the intersection for hurricane evacuation.*

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Emergency Evacuation

When considering as a primary purpose, the following must be documented:

- Adopted emergency evacuation plan
- Location is on an identified evacuation route
- Scope addresses all relevant needs for successful evacuation



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Questions?

"Creative minds have always been known to survive any kind of bad training"
--Anna Freud

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Possible Purposes

Transportation

- Congestion
- Safety
- Facility Deficiencies
- Access
- System Linkage
- Mobility
- Emergency Evacuation

Other Goals/Objectives

- Legislative Intent
- Environmental Protection
- Growth/Economic Development
- National Defense/Security

PS-P&N Training

Legislative Intent

Congressional example (from SAFETEA-LU)

"...Environmental studies and construction of U.S. 74 Monroe Bypass Extension..."

PS-P&N Training

Legislative Intent

Who?

- Congress
- State legislatures

How?

- Specific corridor
- Special funding
- Mode
- Non-discretionary



PS-P&N Training

Legislative Intent

Congressional example (HR 105-504)

"Trappers Loop connector Road- Provides that actions related to construction of the Trappers Loop connector Road that are undertaken by agencies or entities other than the Forest Service are deemed to be nondiscretionary actions authorized and directed by Congress..."

PS-P&N Training

Legislative Intent

- Project-specific legislation does not necessarily determine the project purpose
- Lead agency still must exercise judgment in the NEPA process when deciding if and how to incorporate legislative direction into the purpose
- Unless legislative intent **exempts** FHWA from compliance with relevant laws (e.g. NEPA), legislative intent cannot be used as the sole reason for directing decisions on the project

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Legislative Intent

Congressional example (REAL ID Act of 2005)

"...the Secretary of Homeland Security shall have the authority to waive, and shall waive, all laws such Secretary, in such Secretary's sole discretion, determines necessary to ensure expeditious construction of the barriers and roads under this section..."



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Legislative Intent

NC General Assembly examples

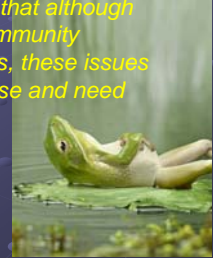
"[to construct a new toll bridge] of more than two miles in length going from the mainland to a peninsula bordering the State of Virginia."
(NCGS 136-89.183(a)(2))

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Environmental Protection

"EO 13274 Task Force on Purpose and Need":

"for the bulk of transportation projects, most staff across Federal agencies agreed that although environmental protection and community enhancement are important goals, these issues should not be a part of the purpose and need statement itself."



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Environmental Protection



PS-P&N Training

Environmental Protection

Protected Living Marine Resources Program

"The USCG proposes this action to aid in the fulfillment of its missions, including protection of the environment, while fulfilling USCG obligations to protect listed species"



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Environmental Protection

- P&N should focus on the underlying reasons based on meeting a transportation need
- How the project is carried out (avoiding/minimizing impacts) is distinct from the P&N



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Environmental Protection

Rate these examples (Good, Bad, OK)

- The purpose is to protect the environment.
- The purpose is to reduce environmental impacts from US 5.
- The purpose is to protect habitat for the dwarf wedgemussel for impacts to the species associated with future Federal-aid highway projects.
- The purpose is to mitigate for environmental impacts

PS-P&N Training

Growth/Economic Development



PS-P&N Training

Growth/Economic Development

Example

Language from SAFETEA-LU:

"Transportation Improvements at Piedmont Triad Research Park, Winston-Salem, NC"



PS-P&N Training

Growth/Economic Development

Public infrastructure (e.g. water, sewer, schools & transportation) and other considerations (e.g. tax rates, available workforce, available land and/or buildings, real estate values) collectively help determine how and where a community will grow and prosper economically



PS-P&N Training

Growth/Economic Development

Example

Original Purpose language:

"The Park's primary purpose and need is to provide the Piedmont Triad with a new biotechnology employment sector to replace jobs eliminated by tobacco and textile manufacturing"



PS-P&N Training

Growth/Economic Development

P&N should focus on the **underlying reasons based on meeting a transportation need**

A desired outcome of a transportation project can be the **facilitation** of growth



PS-P&N Training

Growth/Economic Development

Example

Revised Purpose language:

"The purpose of the project is to improve connectivity, north-south traffic capacity and access to property between Stadium Drive and Third Street near the downtown Winston-Salem CBD"

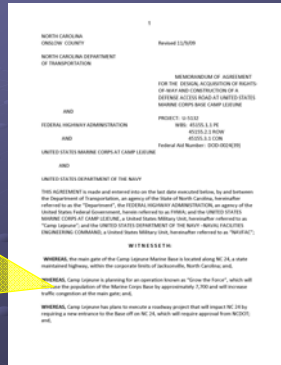


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National Defense/Security

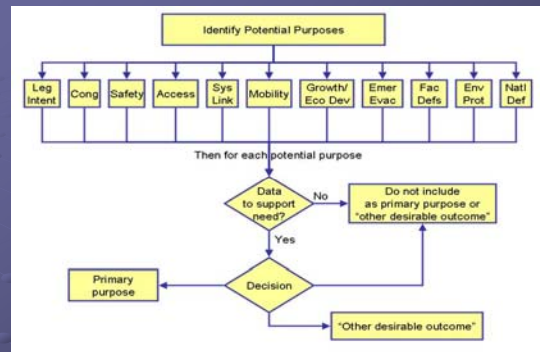
Example Need from DOD

"WHEREAS, Camp Lejeune has plans to execute a roadway project that will impact NC 24 by requiring a new entrance to the Base off on NC 24"



PS-P&N Training

So Which One(s) Do I Pick?



PS-P&N Training

National Defense/Security

Installation Purpose Example:

The DOD eliminated public access to Beulah Street and Woodlawn Road within Fort Belvoir following events of 9.11.01

"The purpose...is to replace the once-public access provided by VA Route 618 (Woodlawn Road) and VA Route 613 (Beulah Street) between U.S. Route 1 and VA Route 611 (Telegraph Road)...The project purpose is to offer replacement connectivity compatible with force protection concerns."

PS-P&N Training

Questions?

"What I hear, I forget. What I see, I remember. What I do, I understand."

-- Kung Fu Tzu (Confucius)

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So Which One(s) Do I Pick?

- Understand how the project was conceived
- Develop a range of potential purposes
- Analyze each potential purpose to determine if there is a well-defined and well-supported need
- Choose one:
 - primary purpose
 - "other desirable outcome"
 - do not include

Note: there needs to be at least one primary purpose and all it takes to justify a project is one primary purpose

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Summary/ Wrap- Up

- Connecting PS and P&N
- What's My Role?
- Learning Outcomes Review

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Resources

🌐 NCDOT Integration (includes PS Guidance, P&N Guidance, PS FAQs):
www.ncdot.org/doh/preconstruct/tpb/IP/default.html

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