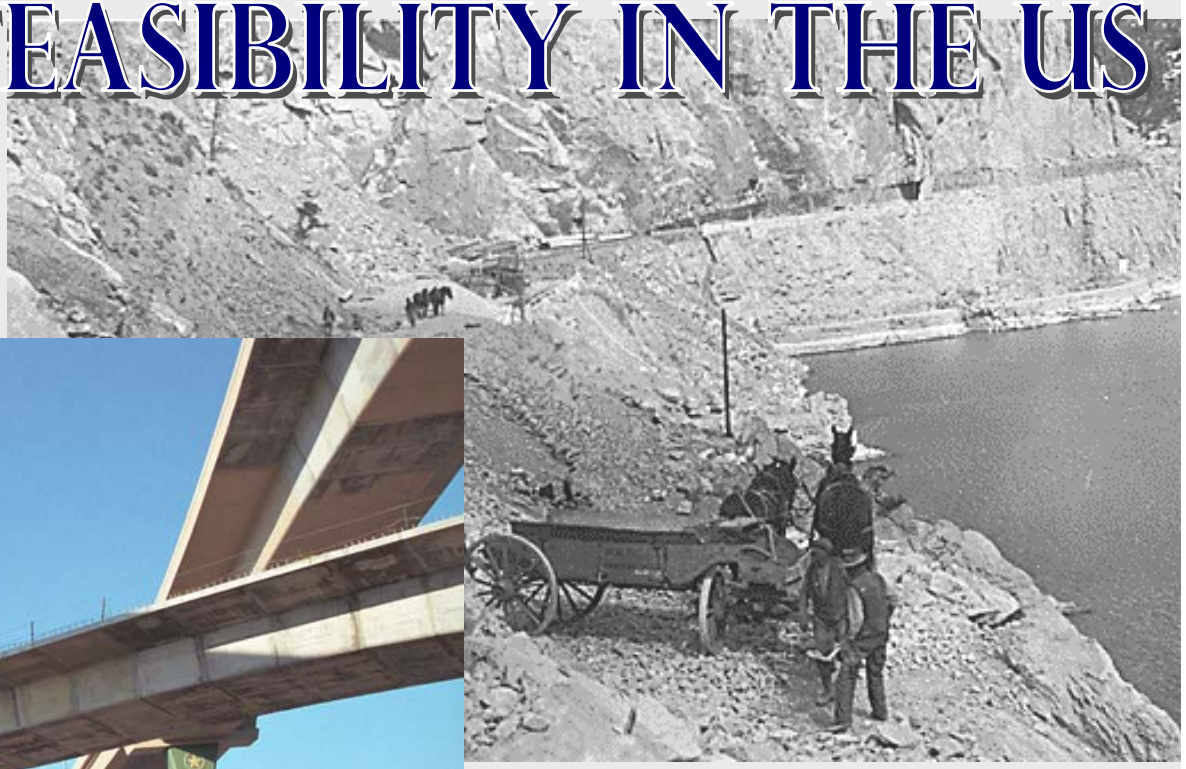
DECISION-MAKING FOR MAJOR INFRASTRUCTURE INVESTMENTS: MEASURING FEASIBILITY IN THE US



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MAY 22, 2007

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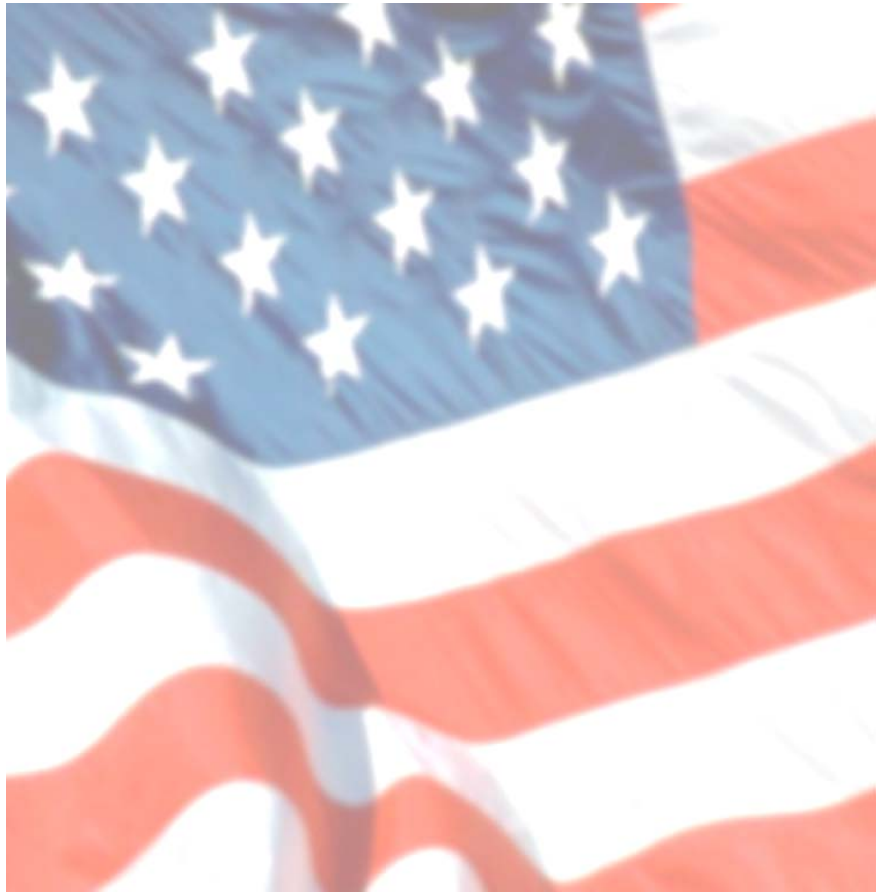

- Overview & Legal Framework
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- Lessons

OVERVIEW

Many names:

- Feasibility Studies
- Alternatives Analyses
- Major Investment Studies
- Corridor Studies

Name, content depends on:

- Who is doing the study
- What the final goal of the study is
- Where money will come from to pay for study

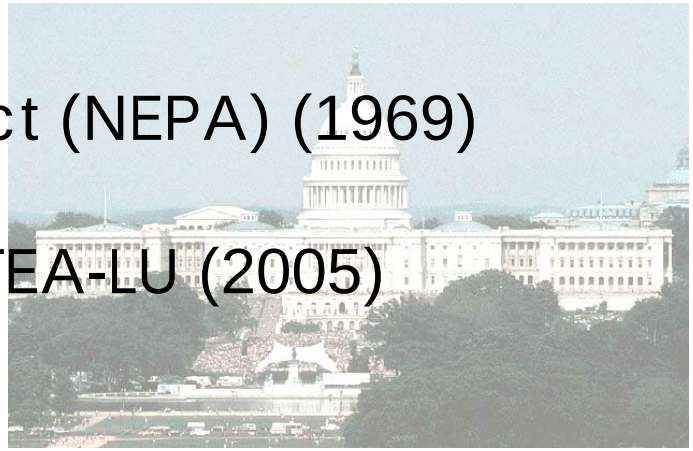
LEGAL FRAMEWORK

Generally:

- Difference in government structure
  - Weaker central government
  - More defined roles for states, counties, cities
  - To receive federal funding, states/agencies must comply
  - The US Federal government does NOT build, own, or operate transportation infrastructure

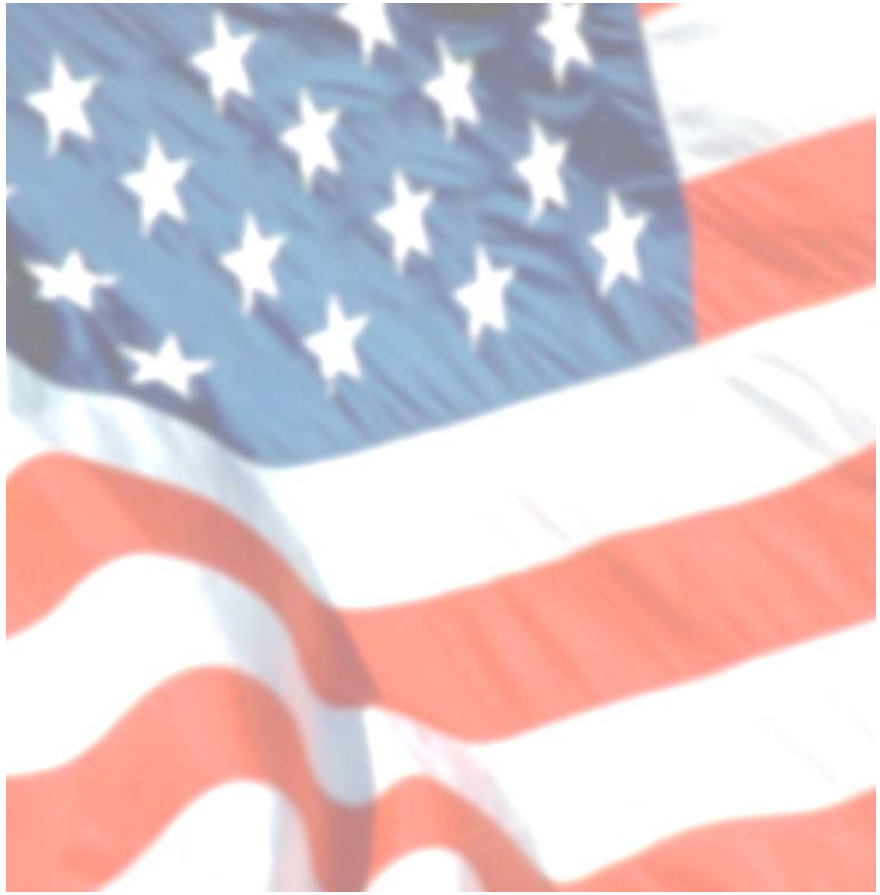
Specifically:

- National Environmental Policy Act (NEPA) (1969)
- Clean Air Act (1970)
- ISTEA (1991), TEA-21 (1998), SAFETEA-LU (2005)



LEGAL FRAMEWORK

- Formula funds given to the states, some (not many) strings attached
- Some funds specifically requested for a project
  - NEPA environmental review required
  - If New Starts transit funds, alternatives analysis with New Starts criteria also required
- Basically, not many specific analysis procedures
  - Consistent with other regional plans
  - Well-documented
  - Reasonable, accepted standards
- Mostly process requirements
- Env. Impact Statement has specific content
- Transit Alternatives Analyses has specific MOEs



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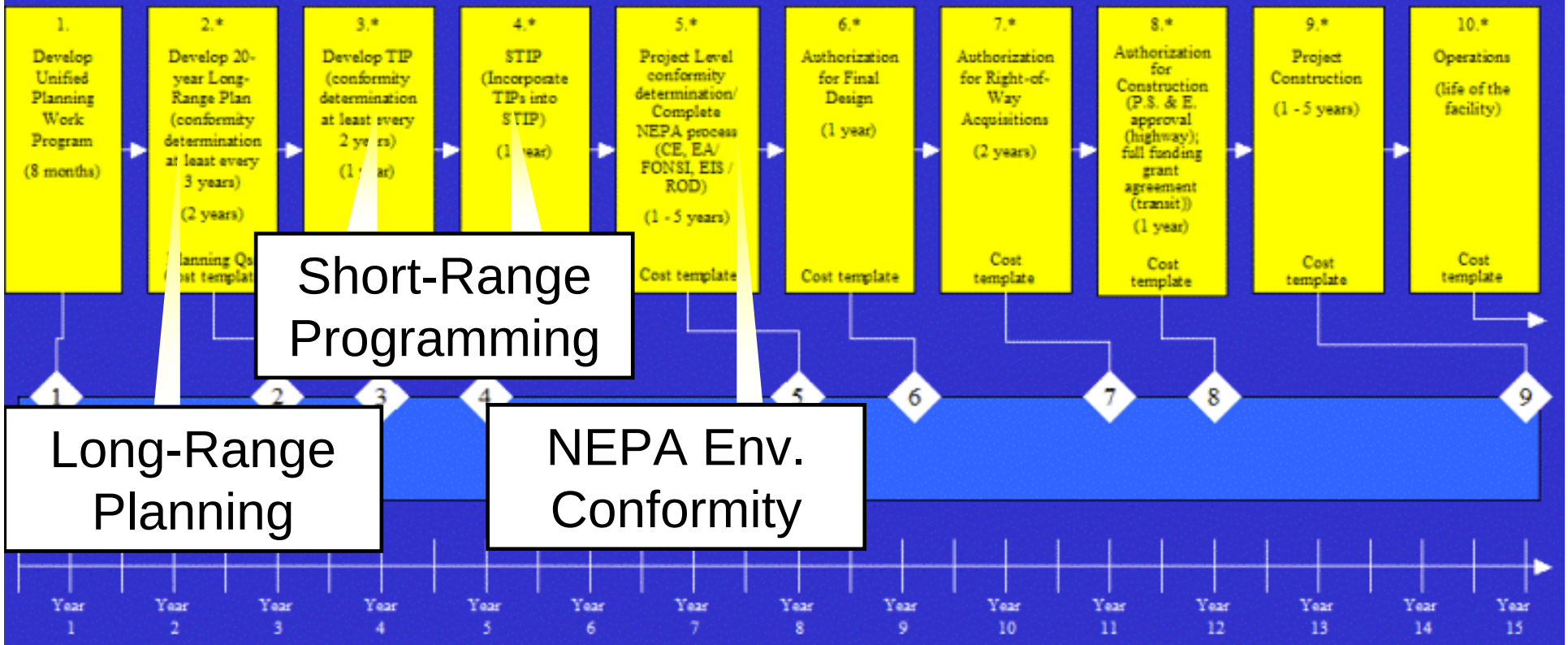
Highway
Planning and Project Development Process



Time Line

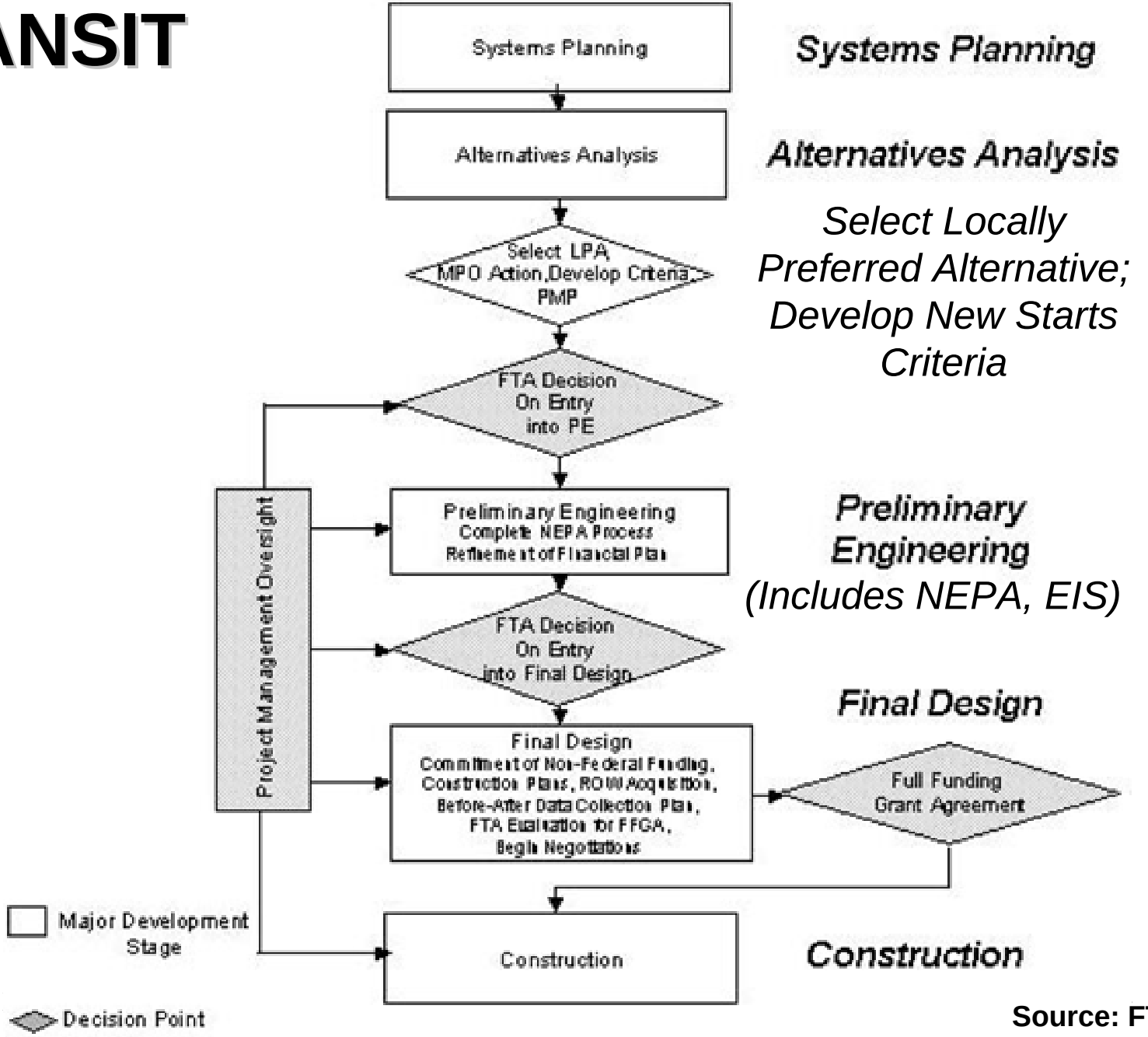
Legend

TIP	Transportation Improvement Program
STIP	Statewide Transportation Improvement Program
NEPA	National Environmental Policy Act
CE	Categorical Exclusion
EA	Environmental Assessment
FONSI	Finding Of No Significant Impact
EIS	Environmental Impact Statement
ROD	Record of Decision
P. S. & E.	Plans, Specifications, and Estimates
Planning Qs	Planning Questions

* Cost Estimate Check

Source: FHWA

TRANSIT



Source: FTA

TIPs

Short Range Programming of Projects:

- Estimated total cost;
- Estimated federal funds required per year;
- Estimated sources of non-federal funds;
- Agencies who will undertake the project;
- Mode of the project;
- Termini, approximate length, and general alignment;
- Number of lanes or tracks; and
- Degree of grade separation and access control.

EIS

Requirements:

- Purpose and need
- Environment, Economic, Social, Human impacts, etc.
- Forecasting for transportation impacts
- Cost
- Basic Design
- Public Involvement
- Evaluation of Alternatives

Some items can be done as part of preceding feasibility studies

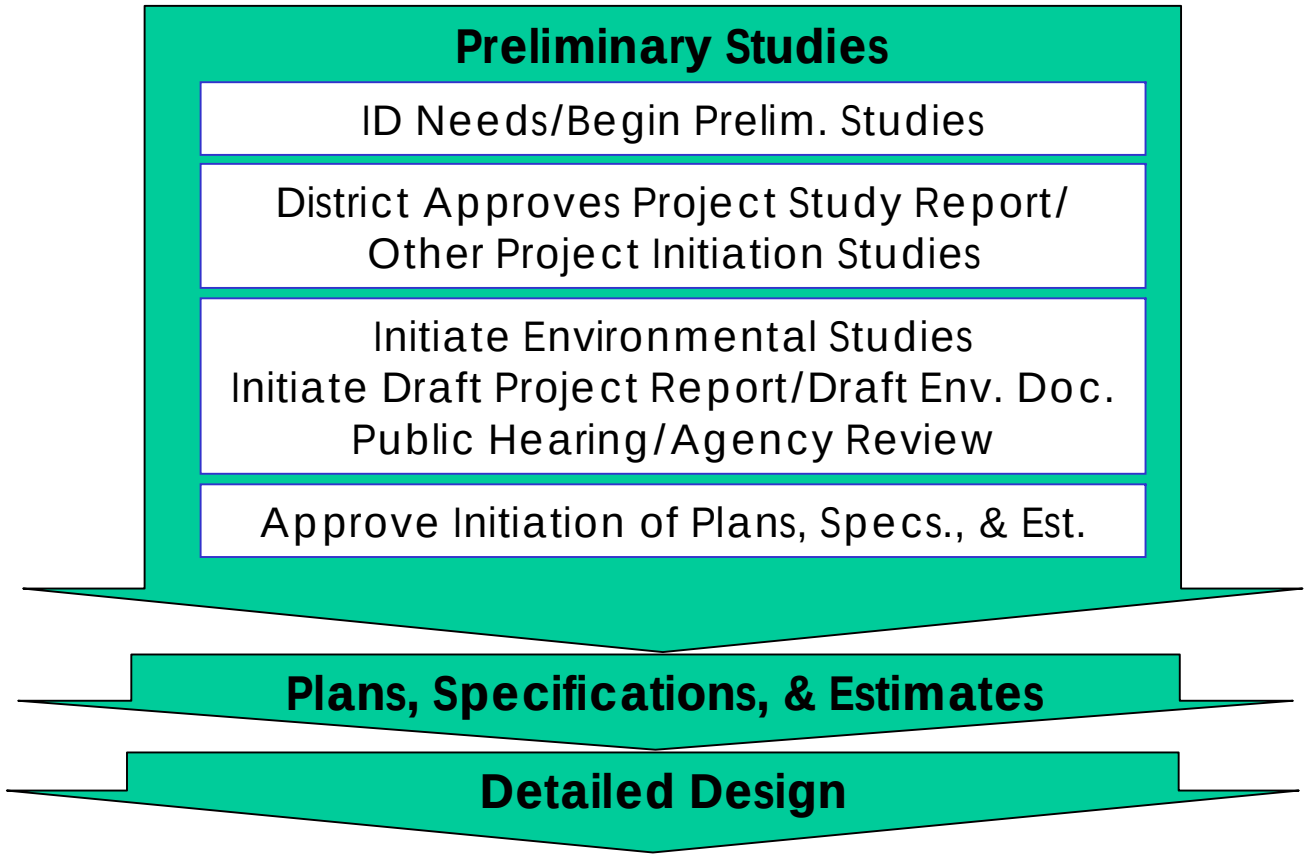
NEW STARTS CRITERIA

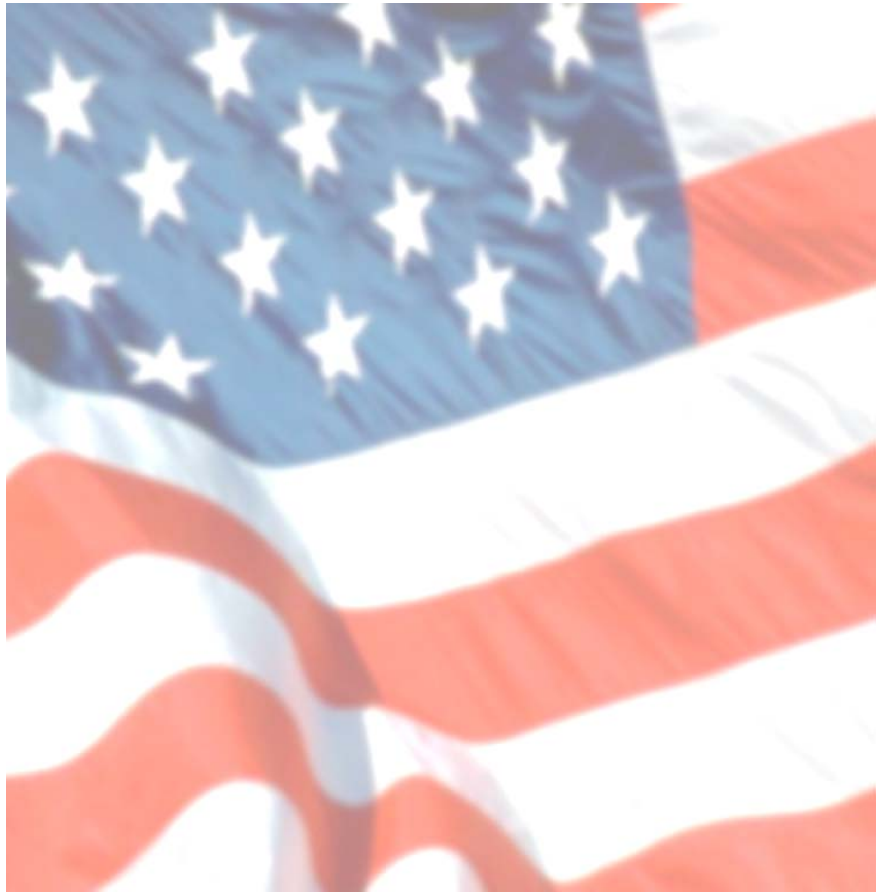
Criteria	Measure(s)
Mobility Improvements	- Hours of Transportation System User Benefits - Low-Income Households Served - Employment Near Stations
Environmental Benefits	- Change in Regional Pollutant Emissions - Change in Regional Energy Consumption - EPA Air Quality Designation
Operating Efficiencies	- Operating Cost per Passenger Mile
Cost Effectiveness	- Incremental Cost per Hour of Transportation System User Benefit
Transit Supportive Land Use and Future Patterns	- Existing Land Use - Transit Supportive Plans and Policies - Performance and Impacts of Policies - Other Land Use Considerations
Other Factors	- Project benefits not reflected by other New Starts criteria

Source: FTA

STATE EXAMPLE

California (Initiated by District)





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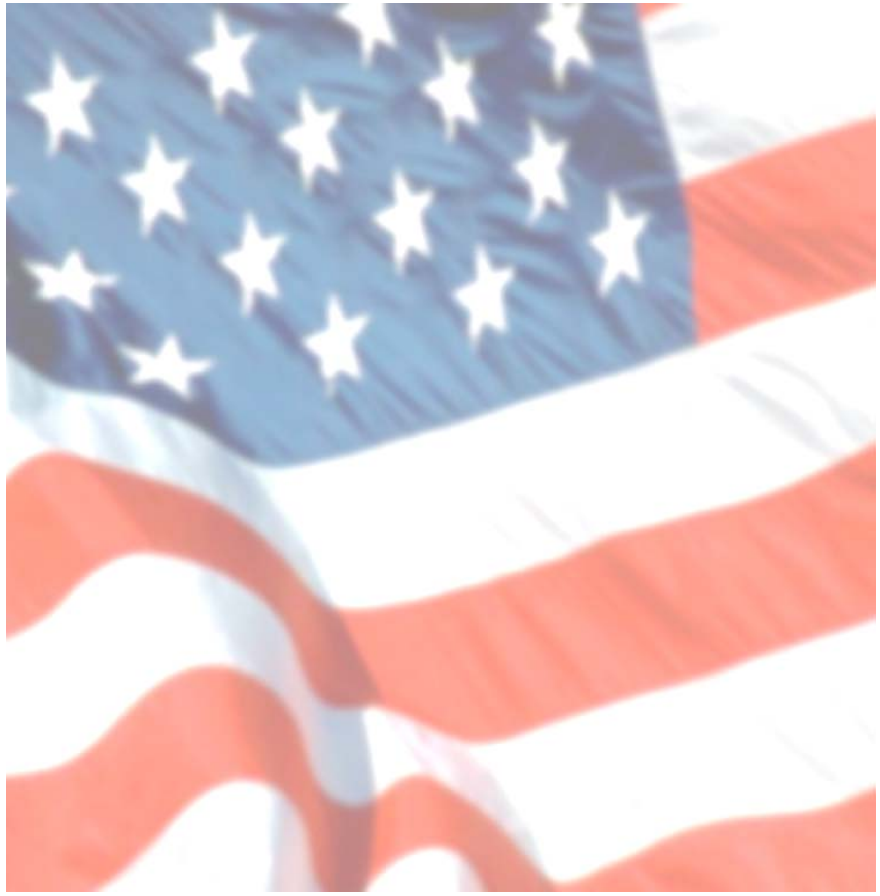
FEASIBILITY SUGGESTIONS

1. Existing conditions, history of previous studies/input, commitments by elected officials, relevant legislation
2. Documentation of analysis procedures
3. Evaluation of alternative modes, management strategies, design levels and locations
4. Travel Forecasts, design and environmental considerations, and cost estimates
5. Economic study of the benefits; preliminary economic justification and financial feasibility
6. Terminate the study OR engineering and environmental feasibility

FEASIBILITY SUGGESTIONS

Office of Management & Budget B/C guidance:

- Recommended discount rates (~3% real)
- Interactive, international, and transfer payment effects
- Dealing with inflation
- Inframarginal measures vs. Indirect measures
- Uncertainty through expected values, sensitivity



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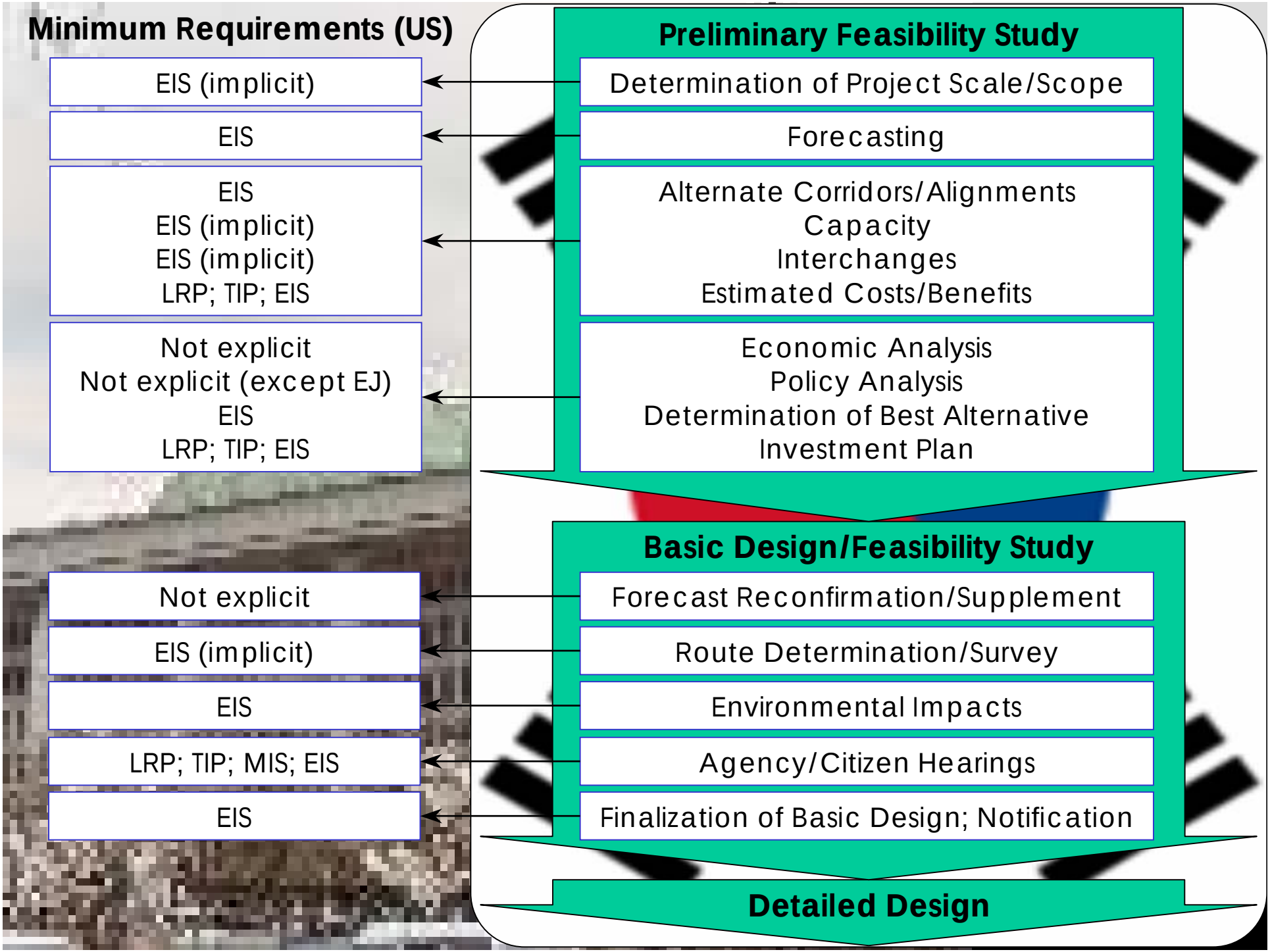
SURVEY OF STUDIES

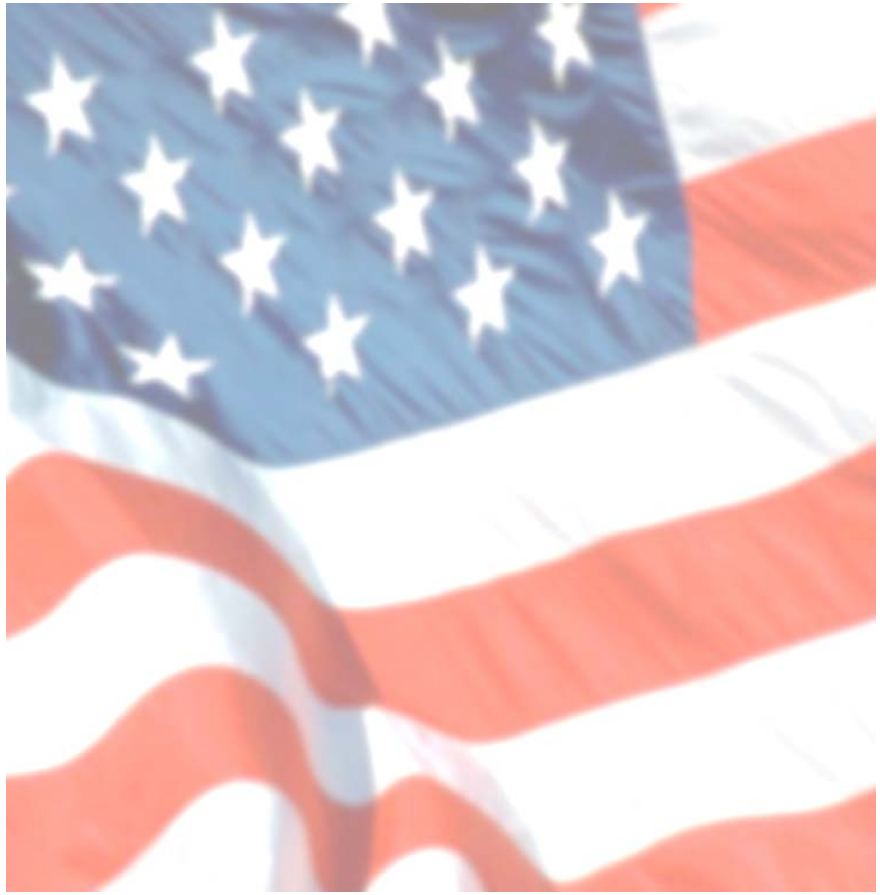
Selected Studies	Key Components	
Columbia Pike Transit Alternatives Analysis	- Public Involvement - Purpose & Need - Alts. Screening - Prelim. Design/Ops for Alts. - Capital/O&M Costs - New Starts Criteria	- Model & Simulation Development/Forecasting - Development/Analysis of MOEs - Environmental Impacts - Select Preferred Alt.
Cross Harbor Freight Movement MIS	- Public Involvement - Alts. Screening - Engineering Feasibility - Model Development/Forecasting	- Market Analysis - Capital/O&M Costs - Revenue Analysis - B/C Analysis
Feasibility Study: I-74	- Public Involvement - Purpose & Need - Forecasting of Volumes/LOS	- Capital Costs - Fatal Flaw Env. Screen
Grand Avenue MIS Phase II	- Public Involvement - Purpose & Need - Forecasting - Broad Costs	- Funding/Implementation Plan - Recommended Alts.

SURVEY OF STUDIES

Among 10 Planning Studies Surveyed, Almost All Had:

- Public Involvement
- Project Scale
- Forecasting (with or without model)
- Alternatives
  - –EIS: alignment/design differences
  - –MIS/other: mode, corridor, concept differences
- Estimated Costs
- Policy Analysis


Minimum Requirements (US)
EIS (implicit)
EIS
EIS
EIS (implicit)
EIS (implicit)
LRP; TIP; EIS
Not explicit
Not explicit (except EJ)
EIS
LRP; TIP; EIS
Not explicit
EIS (implicit)
EIS
LRP; TIP; MIS; EIS
EIS
Preliminary Feasibility Study
Determination of Project Scale/Scope
Forecasting
Alternate Corridors/Alignments
Capacity
Interchanges
Estimated Costs/Benefits
Economic Analysis
Policy Analysis
Determination of Best Alternative
Investment Plan
Basic Design/Feasibility Study
Forecast Reconfirmation/Supplement
Route Determination/Survey
Environmental Impacts
Agency/Citizen Hearings
Finalization of Basic Design; Notification
Detailed Design



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THE GOOD…

- Comprehensive, continuous, multimodal, and intermodal
- More rational project selection processes
- Includes all levels of government and stakeholders
- Plans can be seen as real tools for decision-makers, not just rubber stamp
- Flexible based on needs, area, etc.
- Analysis may include useful, non-traditional items

THE BAD…

- Complex web of explicit and implicit requirements
- What is suggested, required, or at an one's discretion?
- Have to consider federal, state, local regulations
- Regulations continuously updated
- Resources sometimes wasted, projects redone

…AND THE UGLY

- The Congress makes the laws
- Congress can bypass the methodical public investment screening process with earmarks

THANK YOU FOR YOUR TIME

EMAIL: EEC@KOTI.RE.KR