

## Coordinating Transportation and Land Use in the U.S.

Chris Porter

Cambridge Systematics, Inc.

for MIT Course 11.953: Comparative Land Use and Transportation Planning

May 4, 2006

1

## What Does “Coordination” Mean?

- ▶ What does it mean to “coordinate” transportation and land use?

***Transportation***  ***Land Use***

2

## A Few Minor Problems...

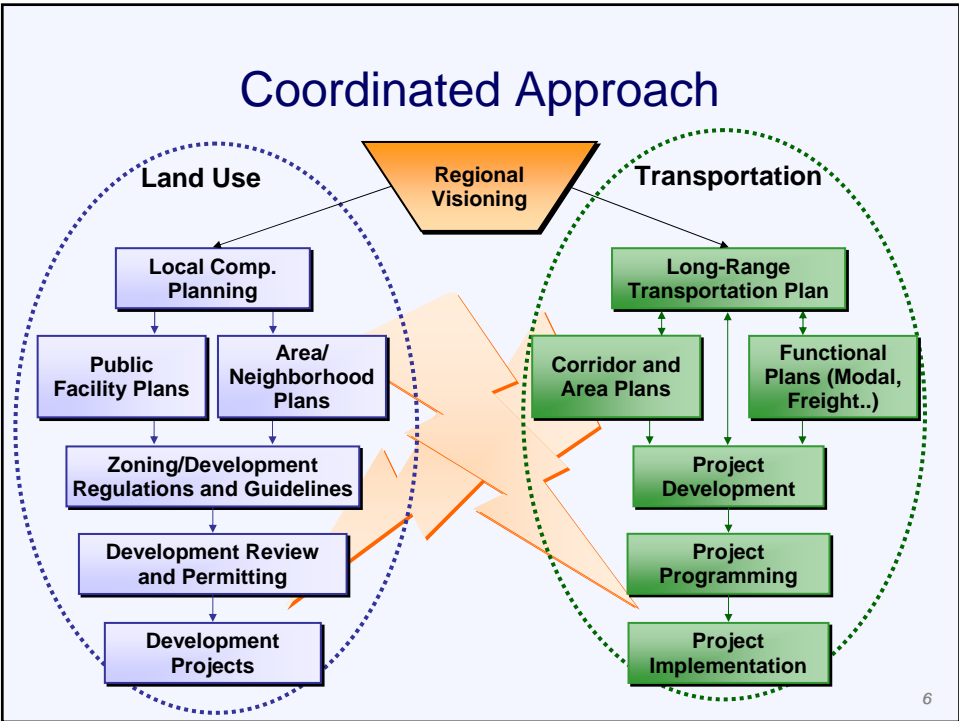
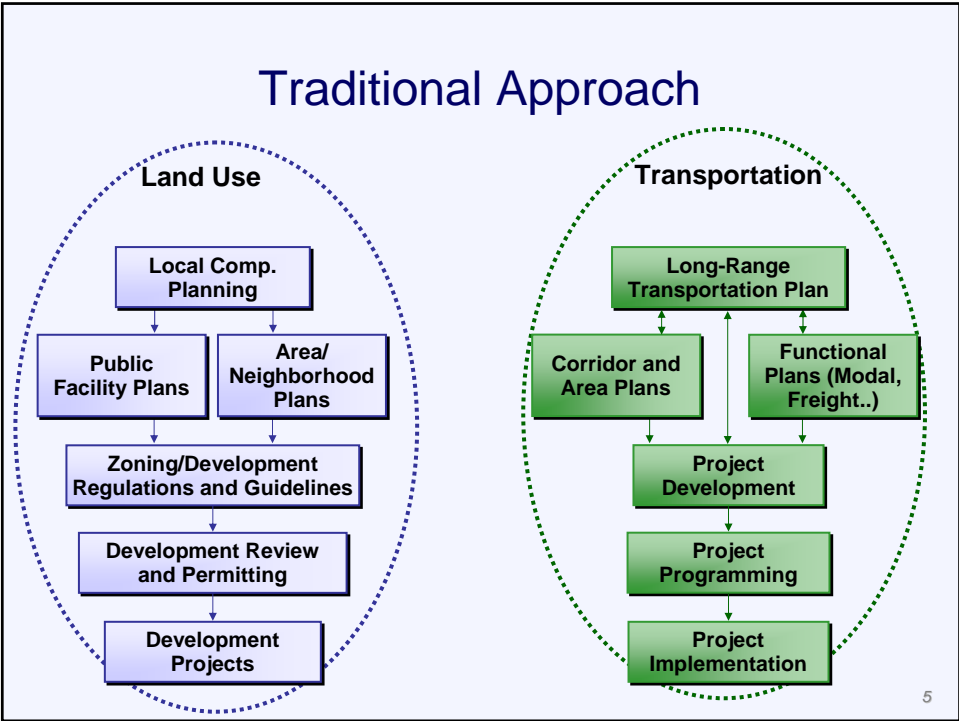
- ▶ Increasing vehicle-miles of travel (VMT), traffic congestion, and environmental impacts...
- ▶ Transportation investment needs exceeding our financial resources...
- ▶ Over 40,000 traffic fatalities a year...
- ▶ Communities where we can't walk, bike, or take transit...
- ▶ Loss of prime open space, agricultural land, and natural habitat...

3

## Outline

1. Institutional Framework
2. Planning Processes
3. Tools and Methods

4



## Lead Agencies in Transportation Planning

Transportation Planning Activity	State DOT	MPO	RPA	Transit Agency	City/ County
State LRP, STIP	X				
Metro LRP, TIP		X			
Regional Plan (non-metro)			X		
Local Transportation Plan, CIP					X
Corridor Plan	X	(x)	(x)		X
Subarea/ Neighborhood Plan	(x)	(x)	(x)		X
Specialized Plans (Modal, ITS, freight, safety, etc.)	X	X	X	X	X
Project Development	X	(x)	(x)	X	X

X = Typical/common responsibility  
(x) = Occasionally responsible

7

## Decision-Makers in Local Land Use Planning

- ▶ Local governing body – holds most power and responsibility
- ▶ Planning commission – reviews plans, maps, etc.
- ▶ Board of zoning appeals or adjustment – grants variances
- ▶ Planning staff – review and support
- ▶ Other review boards - design review, historical commission, etc.
- ▶ Other city departments – public works, fire chief, etc.
- ▶ The public – developers, neighbors, etc.

8

## Barriers to Coordination

- ▶ What are some barriers to coordinating transportation and land use?
- ▶ Why haven't we done a good job in the U.S.?

9

## Barriers to Coordination

- ▶ Political - importance of property rights & local authority
- ▶ Different scales of planning (regional/state vs. local)
- ▶ "Not my job"/ not agency's responsibility
- ▶ Inflexible roadway design standards
- ▶ Outdated or restrictive land use regulations
- ▶ Limited resources (time & money)
- ▶ Lack of knowledge/understanding of approaches & benefits
- ▶ Market demand & economic conditions

10

## Approaches to Coordination

- ▶ **Top-down**
  - » Regulatory: “thou shalt...”
  - » Oregon example – statewide planning requirements
- ▶ **Bottom-up**
  - » Cooperative basis
  - » Education, outreach, coordination
  - » Incentives and disincentives
  - » Massachusetts example – state Smart Growth & TOD incentives; Boston MetroFutures project

11

## What’s Needed for Success?

- ▶ **Visionary leadership**
  - » Elected official, agency executive, community leader
- ▶ **Coordination, partnerships, relationship-building**
- ▶ **Patience & persistence**
- ▶ **Financial resources**
- ▶ **Technical tools & know-how**
  - » Small jurisdictions & agencies especially need help

12

## Outline

1. Institutional Framework
2. Planning Processes
3. Tools and Methods

13

## Planning Processes for Coordination

- ▶ Regional Planning & Visioning
- ▶ Corridor Planning
- ▶ Transportation Project Development
- ▶ Local Planning

14

## Regional Planning and Visioning

**Visioning**

Scenario Planning

Alternatives Analysis

**Comprehensive Planning**

15

## Scenario Planning

**Projects Completed**

Year	No. of projects
1989	1
1990	1
1991	2
1992	3
1993	1
1994	1
1995	2
1996	5
1997	4
1998	2
1999	3
2000	7
2001	3
2002	15
2003	17

Bartholomew (2005)

16



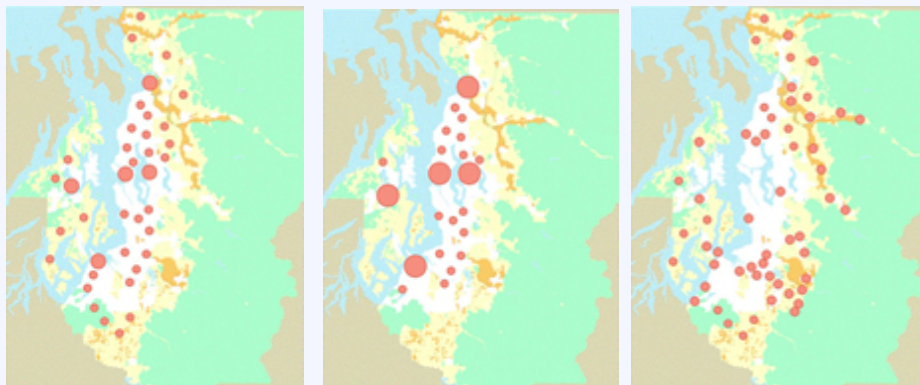
## Elements of Scenario Planning

- ▶ Identify values, goals, and measures
- ▶ Evaluate current conditions and trends
- ▶ Create scenarios (alternative futures)
- ▶ Analyze scenarios
- ▶ Select a “preferred” scenario
- ▶ Create implementation policies and agreements
- ▶ Implement



17

## Seattle, WA: Vision 2020 Scenarios



Continue as planned

Focus growth in bigger cities

Focus growth in smaller cities and towns

Puget Sound Regional Council

18

## Sacramento, CA: Blueprint Indicators

Sacramento Area Council of Governments

19

## Corridor Planning

“A broad geographic band ...

connecting population and  
employment centers...

served by various  
transportation modes...

within which person and freight travel, land  
use, topography, environment and other  
characteristics are evaluated.”

Vermont Agency of Transportation

20

## Corridors in Different Contexts

21

## Range of Strategies

- ▶ Land use
- ▶ Minor operational improvements (highway, transit)
- ▶ Alternative mode improvements, TDM
- ▶ Access management
- ▶ Local street networks
- ▶ Road widening, grade separation, bypass
- ▶ Fixed-guideway transit

*Low Capital*

*High Capital*

22

**Case Study: Columbia Pike,  
Arlington Co., VA**

**Columbia Pike - Context**

Dover, Kohl & Partners and Arlington Co., VA

## 1998 Columbia Pike Initiative

- ▶ Built on previous initiatives
- ▶ Goal: create a safer, cleaner, more competitive and vibrant Columbia Pike community
- ▶ Community process to establish long-range vision and plan
  - » 150+ meetings during 2000-2001

Dover, Kohl & Partners and Arlington Co., VA

25

## Public Survey – Pike Priorities

- ▶ #1 – Pedestrian safety & comfort
- ▶ #2 – Thriving businesses
- ▶ #3 – Expanded access to transit
- ▶ #4 – Easy parking
- ▶ #5 – Free flowing traffic for commuters during peak hours

26

## Traffic Simulation of Transit Alternatives

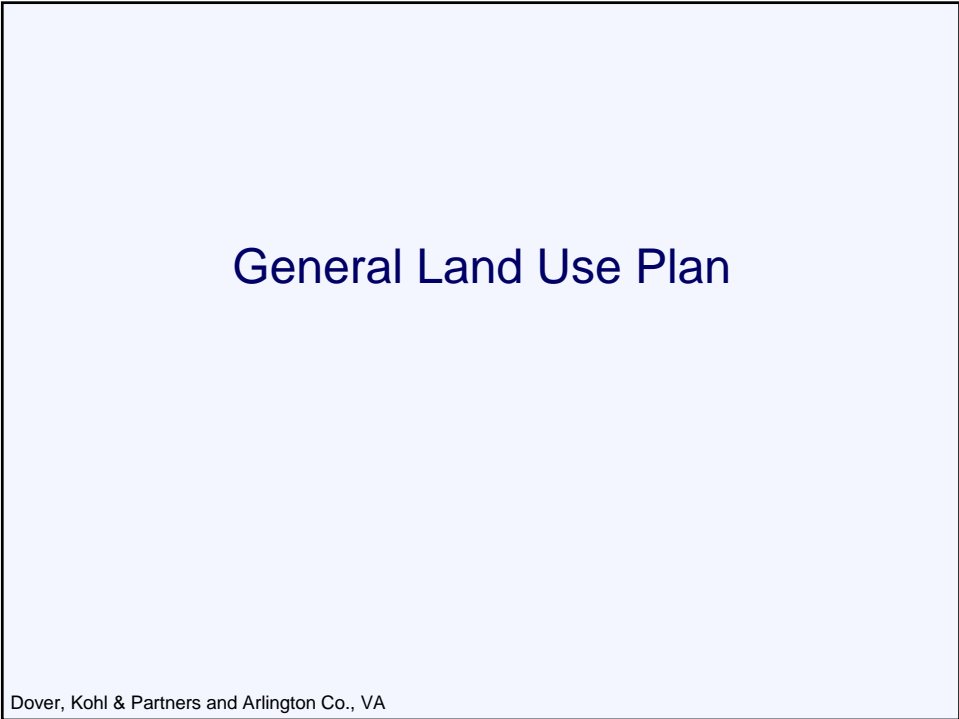
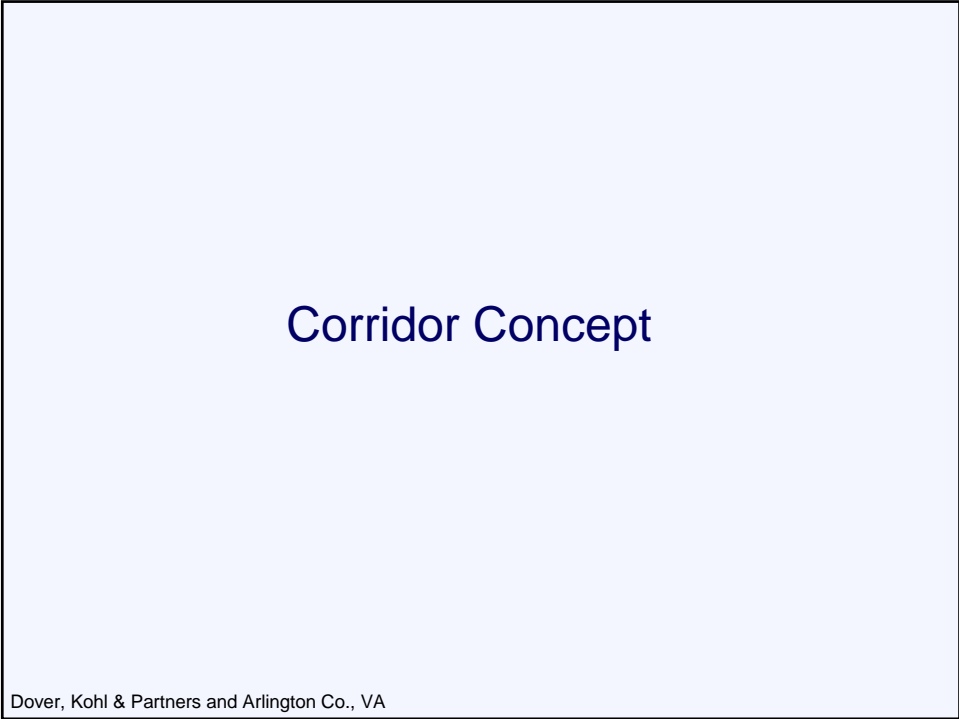
Dover, Kohl & Partners and Arlington Co., VA

27

## Vision Statement & Meaning

- ▶ “Create a safe, clean, vibrant, and competitive Columbia Pike for now and future generations.”
  - » Walkable
  - » Easy to build the right thing
  - » Wake up the storefronts
  - » Promote local entrepreneurship
  - » Champion diversity, mix uses, mix incomes
  - » Evolve from suburban to urban character
  - » Balance transit, walking, biking, traffic
  - » Control the scale and fit

28



## Implementation Actions

- ▶ Tax Increment Finance (TIF) district established (2002)
- ▶ Adoption and enforcement of Form Based Code (2003)
- ▶ Catalyst project(s)
- ▶ Streetscape and road network improvements
- ▶ Transit investment

31

## Form Based Code Charrette

- ▶ Over 750 participants; 7 day process
- ▶ Interviews
- ▶ “Studying the Pike”
- ▶ Technical briefing & open microphone
- ▶ Hands-on drawing session
- ▶ Saturday work session
- ▶ Design studio

Dover, Kohl & Partners and Arlington Co., VA

32



Form Based Code

Dover, Kohl & Partners and Arlington Co., VA

Transportation Network Improvements

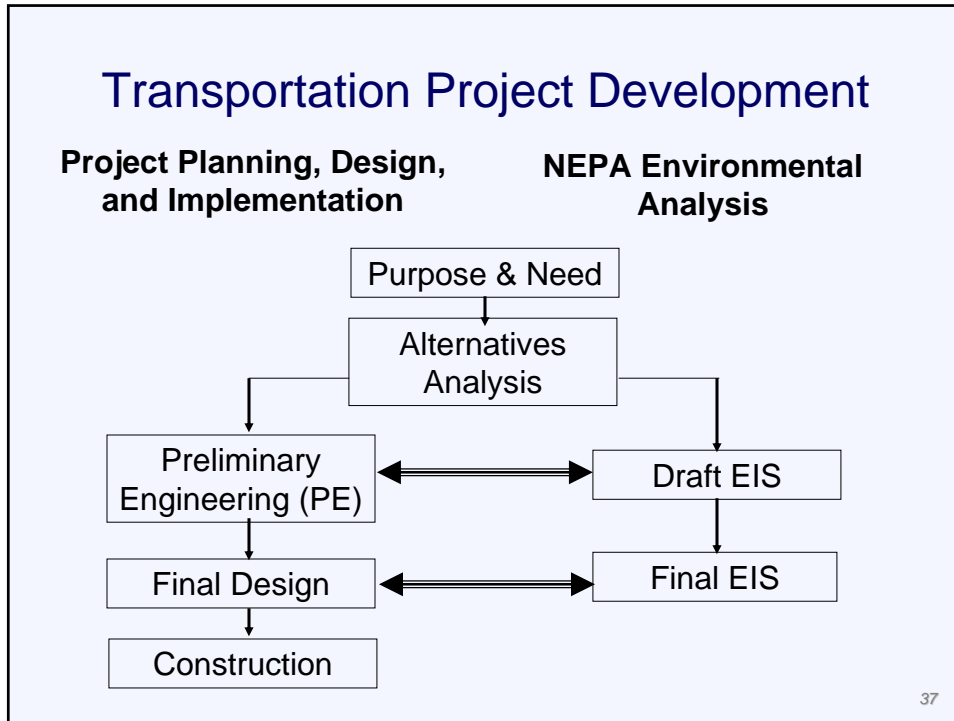
Dover, Kohl & Partners and Arlington Co., VA

Roadway/Streetscape Design

Dover, Kohl & Partners and Arlington Co., VA

Outcomes?

Dover, Kohl & Partners and Arlington Co., VA



## How is Land Use Typically Addressed?

- ▶ Description of baseline conditions
- ▶ Localized impacts (property takings, acres of farmland, parks, etc. lost to project)
- ▶ Historic and archeological sites
- ▶ Direct ecological impacts (e.g., wetlands, runoff, endangered species habitat)
- ▶ Community impact assessment & environmental justice

## A More Holistic Approach?

- ▶ Evaluate project and non-project alternatives consistent with regional or corridor vision
- ▶ Include land use strategies in alternatives
- ▶ Assess secondary and cumulative impacts
- ▶ Evaluate and select alternatives based on consistency with land use objectives
- ▶ Design projects with sensitivity to land use context
- ▶ Include land use mitigation measures

39

## Land Use Protection & Mitigation: U.S. 12, Wisconsin

- ▶ Memorandum of Agreement
- ▶ Purchase of development rights
- ▶ Comprehensive planning

Wisconsin Department of  
Transportation

40

## Local Land Use Planning

- ▶ Comprehensive plan
- ▶ Subarea/neighborhood/specific plans
- ▶ Zoning ordinance and map
- ▶ Subdivision regulations
- ▶ Design guidelines
- ▶ Parking requirements
- ▶ Other ordinances, e.g.:
  - » Adequate public facilities ordinances
  - » Transfer of development rights
- ▶ Major thoroughfare plan/official map
- ▶ Sewer and water master plans
- ▶ Capital Improvement Program (CIP)

41

## Coordinating Local Land Use Planning With Transportation

- ▶ Develop comprehensive plan considering regional growth vision
- ▶ Plan for transportation and land use simultaneously (city-wide, neighborhood)
- ▶ Plan/phase local transportation improvements consistent with planned growth
- ▶ Adopt ped./transit-oriented design standards
- ▶ Enforce plan principles through zoning & permitting
- ▶ State or MPO comp plan review/cross-acceptance

42

## Coordinating Local Land Use Planning With Transportation (cont'd)

- ▶ **Coordinate with State DOT:**
  - » Impacts of growth on state highway/ trans. needs
  - » Connections between local streets and state system
  - » Access management policies and procedures
  - » Pedestrian and bicycle facilities
- ▶ **Coordinate with transit agencies:**
  - » Development review - design for transit
  - » Pedestrian facilities in transit service areas
- ▶ **Coordinate with neighboring jurisdictions**

43

## Outline

1. Institutional Framework
2. Planning Processes
3. Tools and Methods

44

## Public Involvement

- ▶ **Decide**
- ▶ **Engineer**
- ▶ **Announce**
- ▶ **Defend**
- ▶ **Ask the right questions**
- ▶ **Listen actively to all responses**
- ▶ **Integrate what you hear**
- ▶ **Verify that you heard rightly**
- ▶ **Engage people in finding solutions -- and implementing them**

45

## Analytical Tools and Methods

<b>Model/Method</b>	<b>Level(s) of Application</b>	<b>Frequency of Use</b>	<b>Key Issues/ Concerns</b>
Travel demand forecasting models	•Regional •Larger corridor	High	•Enhance for "3D's" & walk/bike
Quantitative land use models	•Regional •Larger corridor	Low	•Data requirements •"Black box"
Expert panel/ Delphi forecasting	•Corridor •Small-area	Low – Moderate	•Qualitative/ subjective nature
GIS/community indicator tools	•Small-area •Community •Regional	High	•Data requirements •Transportation impacts
Traffic simulation models	•Intersection •Roadway segment •Corridor •Small-area	Moderate	•Data requirements

46

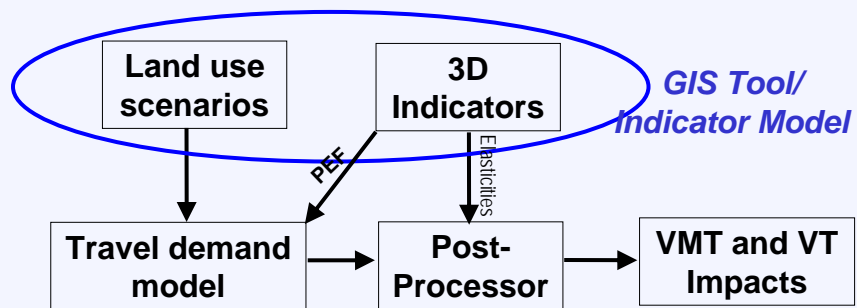
## INDEX Model – Walking Potential

Criterion Planners (2004)

47

## GIS/Community Indicator Models

- ▶ Develop input to travel demand models
- ▶ Develop “3D” indicators for post-processing travel model output



48



## Implementation Tools

Implementation Tool	Implementing Agency				
	State DOT	MPO/RPA	Local Jur.	Transit	Other
Context-Sensitive Solutions policies, flexible roadway design standards	X		X		
L RTP/ TIP investment policies & priorities	X	X			
TIP project selection criteria	X	X			
Targeted funding for transportation projects	X	X	X	X	
Priority investment areas (transportation, municipal services)	X	X	X	X	
Fiscal incentives for certain types of development			X		X
Joint development				X	

49

## Implementation Tools (cont'd)

Implementation Tool	Implementing Agency				
	State DOT	MPO/RPA	Local Jur.	Transit	Other
Local comprehensive plans			X		
Subarea plans (TOD, neighborhood, etc.)	X	X	X	X	
Zoning ordinances and subdivision regulations			X		
Development review & permitting – standards, guidelines, review processes			X		X (state)
Access permitting	X		X		
Concurrency/ adequate public facilities ordinances	X		X		
State codes (rehabilitation, environmental, etc.)					X (state)

50

## Implementation Tools (cont'd)

Implementation Tool	Implementing Agency				
	State DOT	MPO/RPA	Local Jur.	Transit	Other
Redevelopment authority			X		
Transfer of development rights			X		
Purchase of development rights	X		X		X
Education & outreach	X	X	X	X	X
Development design guidelines/manuals	X	X	X	X	X
Technical assistance w/ standards & code revision	X	X		X	X
Implementation team	X	X	X	X	X
Interagency partnerships and agreements	X	X	X	X	X

51

## Long-Range Transportation Plan

- ▶ **Denver**
  - » For inclusion in the LRTP, projects must be identified in Metro Vision
- ▶ **Salt Lake City**
  - » LRTP revised to include 11 high-priority transit projects that support the Quality Growth Strategy
- ▶ **Wilmington, DE**
  - » Designates Transportation Investment Areas and uses to screen LRTP projects

52

## Specific Funded Programs

- ▶ Dallas-Fort Worth - NCTCOG Sustainable Development Program
  - » Catalyze infill, TOD, other “sustainable” projects
- ▶ San Francisco Bay Area - Transportation for Livable Communities Program
  - » Planning & capital improvement grants
- ▶ Massachusetts – State TOD Infrastructure and Housing Support Program
  - » Pedestrian, bike, parking, housing within ¼ mile of transit

53

## Technical Assistance

- ▶ Staff assistance with local plan and code updates
  - » St. Lucie, FL MPO – Hired urban design professional
  - » Charlottesville (VA), Charleston (NC) – MPO asst.
  - » New Jersey Transit – Transit station area planning
  - » Oregon – Transportation and Growth Mgmt. Program
- ▶ “Toolbox” of strategies, examples, etc.
  - » Envision Utah - *Urban Planning Tools for Quality Growth*
  - » Kansas City (MO) MPO – *Creating Quality Places*
  - » Hartford (CT) MPO – *Livable Communities Toolkit*

54

## Benefits of a Collaborative Process

- ▶ Greater buy-in to plan
- ▶ More people to “carry the torch” on implementing it
- ▶ More potential funding sources

**The key to coordinating  
transportation and land  
use is getting all the right  
people to the table!!**

55