

A New Paradigm for Transportation Planning

APA 2009 National Planning Conference

A Paradigm Shift in Transportation Planning

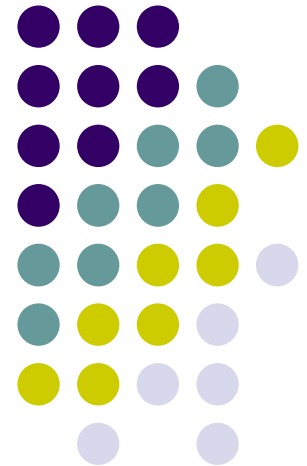
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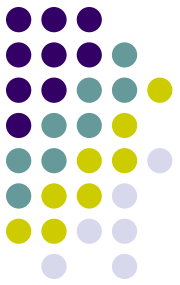
Robert E Paaswell

Distinguished Professor of Civil Engineering

CCNY

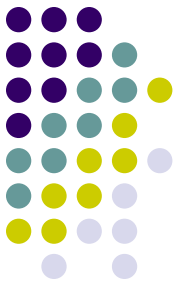
April 28, 2009





Getting to Change

- The current process
- The determinants of change
 - **Funding**
 - **Institutions**
 - **Technology**
- Getting to change



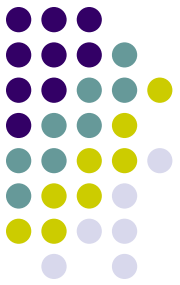
Why we do what we do

- Laws and regulations defining
 - Funding
 - Institutions
 - Planning process

Origins



- The passage of the Federal Aid Highway Act of **1916** discouraged the haphazard construction of roads by counties by **requiring states to establish a highway department** that met the approval of the Office of Public Roads. The State Highway Commission had the responsibility for the preparation of plans and specifications and all construction and maintenance and the federal government had the right to inspect all projects.
- Source: Wisconsin Historical Society;: History Explorer



Our Transportation Objectives

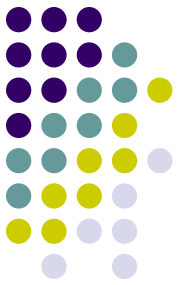
- 1918-1991 – Build Supply
 - **Create agencies** to achieve growth of road capacity
 - **Provide funding** mechanisms for those agencies
 - **Build** – Interstate, Interstate connectors, more arterials, using high capacity design principles



April 2009

**UNIVERSITY TRANSPORTATION RESEARCH CENTER
CITY COLLEGE OF NEW YORK**

KEY EVENTS THAT SHAPED PLANNING INSTITUTIONS AND REQUIREMENTS



DATE	EVENT
1916	BPR
1921	REQUIREMENT: STATE HIGHWAY DEPARTMENTS -START OF TITLE 23
1954	SECT. 701 (HOUSING)- COMPREHENSIVE PLANNING
1961	701 GRANTS USED FOR “URBAN TRANSPORTATION PLANNING
1962	FED AID HWY ACT: 3-C PLANNING
1964	UMT ACT
1965	701 FUNDS TO COGS, RPAs
1968	FHWA PLANNING GUIDELINES
1972	UMTA:REQ'T FOR PLANNING AGENCY, PROCESS
1975	JOINT PLANNING REGS MPO ESTABLISHED: LRP, TIP REQD
1991	ISTEA
1998	TEA21

CHANGES IN MISSION



20th Century

- Mode Specific
- Inward Looking
- Modal Performance Evaluation

21st Century

- Network
- External Looking
- Regional Economic Performance



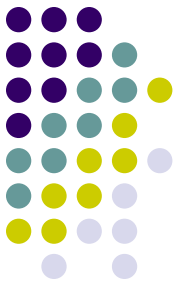
Building the need for change

- The huge funding gaps between infrastructure needs and available dollars (from any source),
- The difficult and time consuming process of implementing mega projects,
- Emerging questions about the role of the car in a sustainable and high energy cost environment,
- The pressures of globalization and its influence on regional investment decision making,
- National cultural shifts, seen in changing household structures, immigration and increasing national diversity, and a growing generation of totally wired people, and
- Global warming, sustainability and the environment and their evolving impact on quality of life decisions, and the transportation impacts of those decisions.

Building the need for change: The Stimulus \$

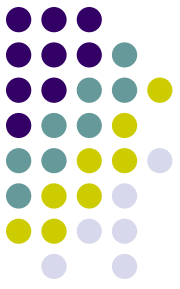


- In February 2009, Congress passed an economic stimulus bill containing billions of dollars for national infrastructure. While this attends to the urgency of finishing “shovel ready projects”, it does not address the structural issues that have created both the long term financial gap in both implementing and maintaining infrastructure and the planning issues surrounding bringing plans to implementation in a reasonable amount of time.
- The STIMULUS funds projects through existing programs reinforcing the “supply” nature of planning



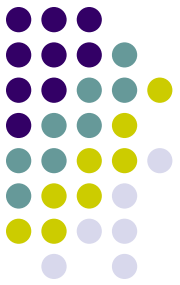
The Shift

- 1950-1980- growth of our major surface transportation networks
- 1980-2000 – slowdown in growth, growing importance of community, environmental concerns – era of “management”
- 2000-present and beyond: new context for planning:
 - Globalization and economic growth
 - Energy, availability, price, utilization
 - The greening of America and the future role of the car



Limits to Finance

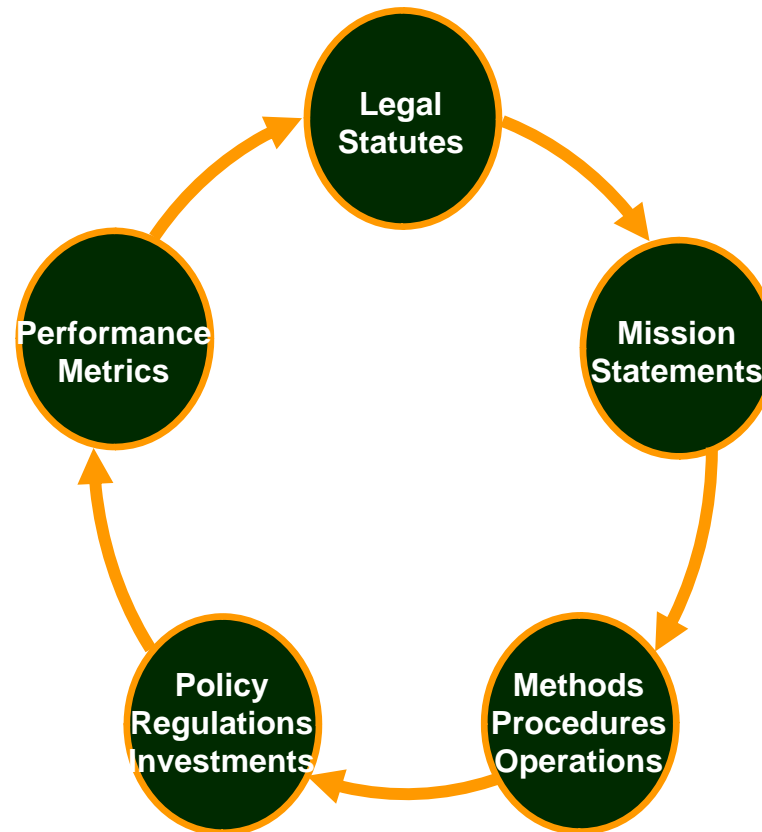
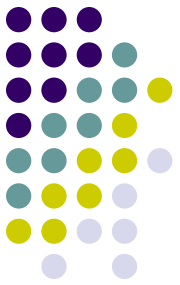
- Old funding mechanisms no longer adequate – both operating and capital
- Planning now driven by capital needs
 - Availability and targeting of funds
 - Funding – at every level – limited
 - Strong public agencies and closely held missions
 - Lack of inclusion of operating needs and targets
 - Political rationalization – “create jobs”
 - Who is the real MPO?



Role of institutions

- Closely defined missions and turf
- Nature and power of elected decision makers
- Planning process and what gets to the table
- Institutional memory not always an asset
- Prescription of analytic tools

Our Institutions

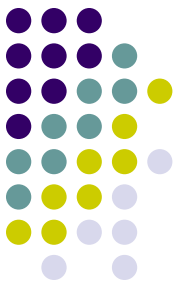


- Established by Federal or State Laws: DOTs, MPOs, RTAs
- By their missions - inward and regional looking
- Supported by methods, procedures and practice developed for their unique missions

In the Box Planning STIP



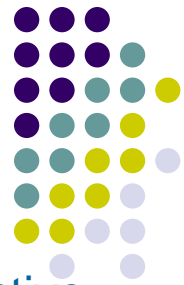
- The 1993 planning regulations elaborate on the following fundamental principles that are particularly relevant to State planning:
 - Within each State, a statewide long-range transportation plan must be produced.
 - Within each State, STIPs, including unmodified TIPs, must be produced.
 - For projects to which the regulations apply, FTA and FHWA will provide financial assistance only to projects contained in the STIP approved by both FTA and FHWA. (Among other things, the STIP contains unmodified TIPs submitted by MPOs.)



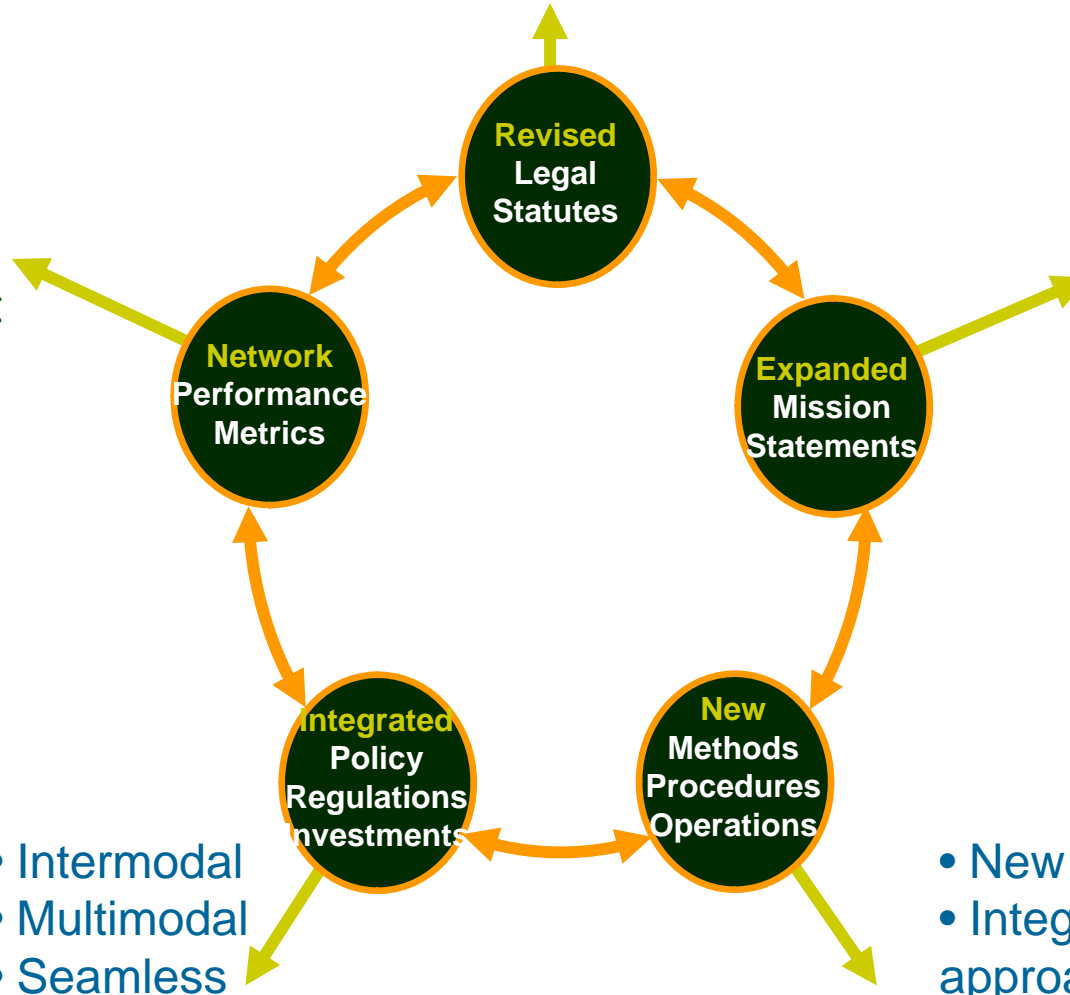
The Planning Conflict

- There are substantial and unique transportation planning and implementation needs:
 - SGR, modernization, new capacity – fundamentally to relieve congestion, **BUT**
- The emerging public needs are outside this box – environment, sustainability, energy use, QOL, new economies- ***are these supported by continuing to support existing transportation focused programs?***

Next Generation Institutions



- Network
- Economy
- Environment
- Social
- Urban

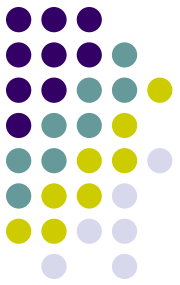


- Proactive
- Inclusive
- Connected

- Intermodal
- Multimodal
- Seamless

- New geographies
- Integrated approaches
- New relationships

- Network Oriented and outwardly focused, next generation institutions will be focused on creating greater connectivity between transportation and the activities it serves.



New roles for agencies

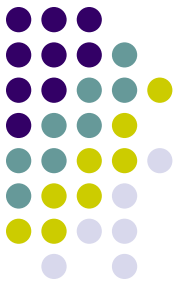
- 21st C agenda
 - Environment, QOL, sustainability
 - Land use integral not external to planning
- Stakeholders regional and global
- New Models of funding (e.g. – see Europe)
- True multi modal
- Utilization of real time information

Role of technology

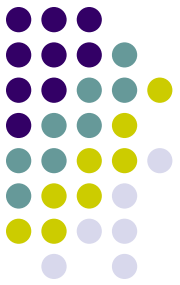


- Integration of computers – large and nano
- Information technology and communications
- Adaptation of next gen telephones/computers

The Modernizer



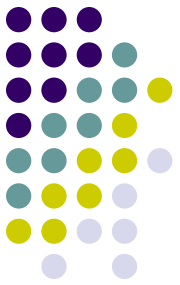
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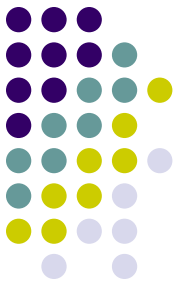
Technology

- Technology and supply
- Technology and demand
- Technology and culture

21st C. transportation supply and demand

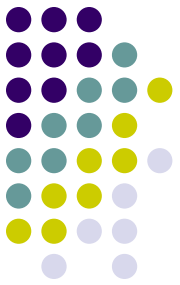


- **The operator and user will have real time information on system performance**
 - **The operator can adjust system to changing patterns of demand or constraints on supply**
 - **The user can adjust travel behavior to knowledge of activity characteristics**



The New Paradigm

- New era
 - Managing capacity
 - Integrating new social objectives
 - Planning transport as integral part of LU, QOL, environment, globalization
 - Development of a new generation of planning tools, behaviorally based, defined by social objectives



The New Paradigm – what's next

- Create new institutions, legislation/regulations, tools for 21st C transportation planning in context of QOL, environment, sustainability, economic growth
- Devise new funding mechanisms to reflect integrated aspects of implementing transportation initiatives
- Develop new planning models based on availability of real time information on system performance, user preferences