

# **A Survey of MPO Land Use, Transportation, and Air Quality Modeling Needs**

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Commission in Association with National  
Association of Regional Councils**

# ***NARC/DVRPC MPO Modeling Survey Purpose***

**To ascertain current modeling practices, planned upgrades, and the related costs for model enhancement, maintenance, and validation.**

# *Use of Survey Results*

**To develop recommendations for next transportation bill now under consideration by the Congress.**

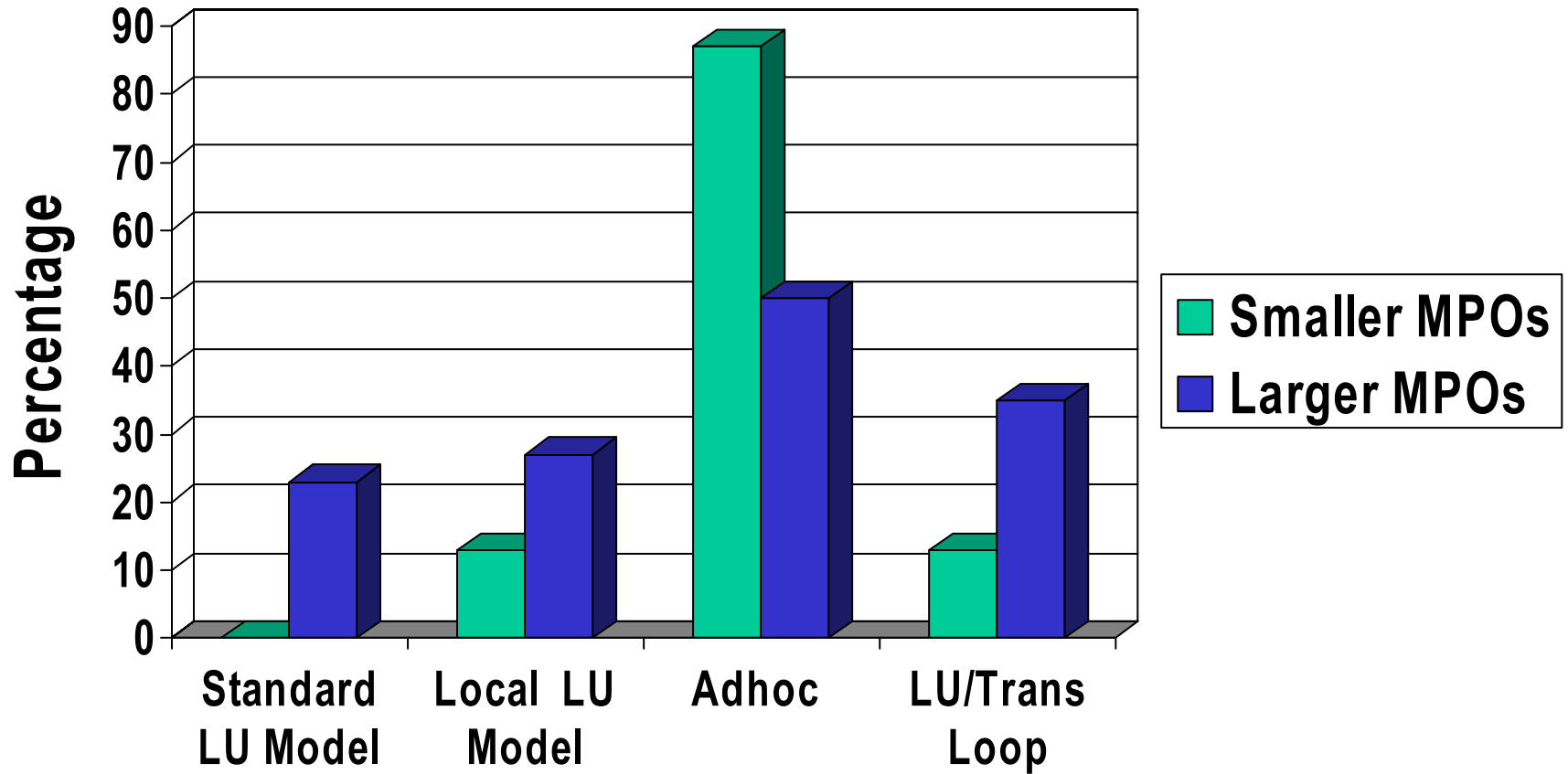
# *Survey Responses by Region Size*

<u>Population</u>	<u>Number of Responses</u>
Less than 200,000	2
200,000 to 500,000	6
500,000 to 1,000,000	6
1,000,000 to 2,000,000	5
2,000,000 to 4,000,000	4
Greater than 4,000,000	8
<b>Total</b>	<b>31</b>

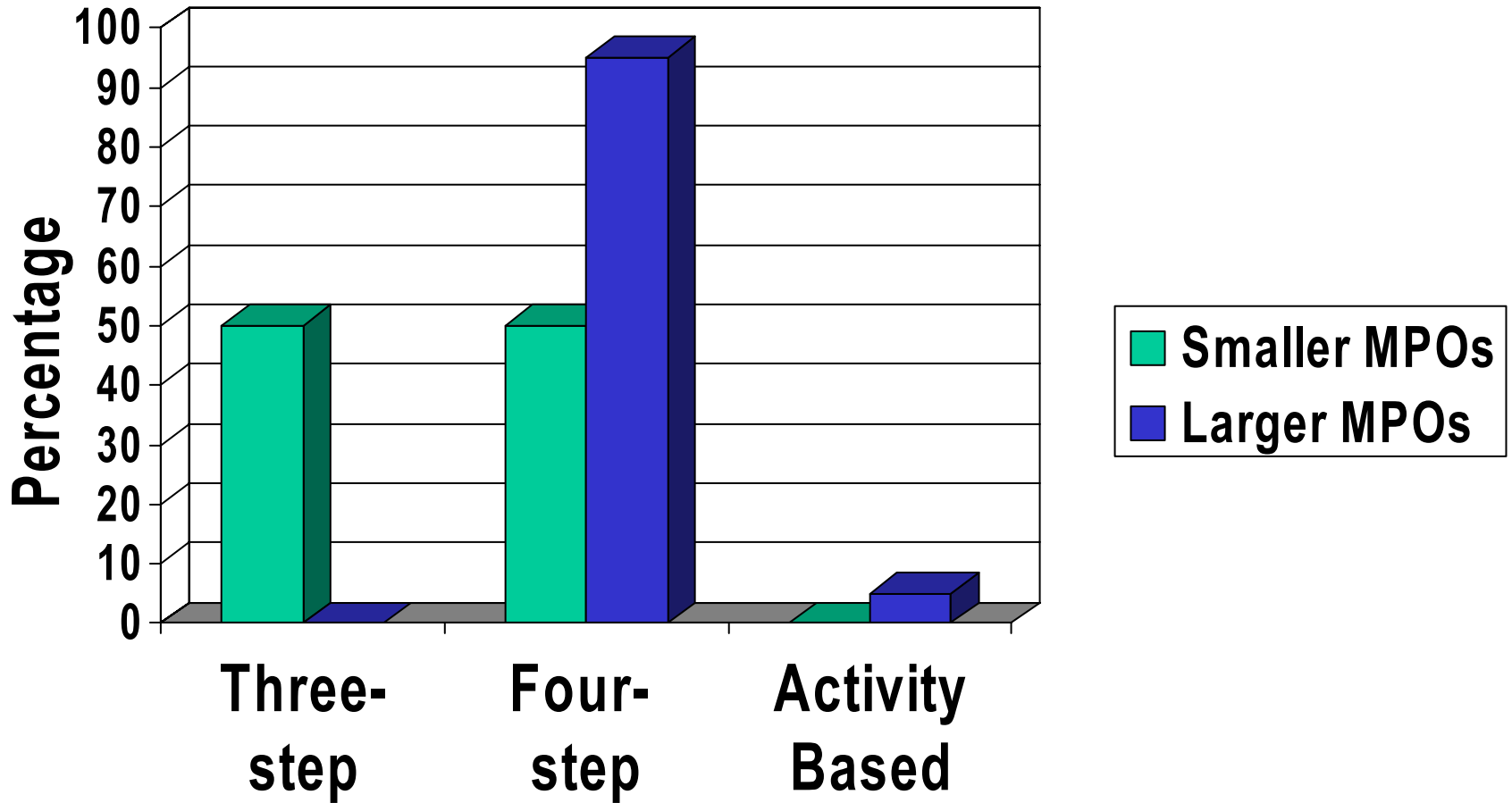
# Land Use, Transportation, Air Quality Forecasting Responsibilities

MPO Responsibility:	Smaller MPOs	Large MPOs
Socioeconomic / land use forecasts	100%	87%
Other agencies or consultants involved	63%	83%
Transportation forecasts	100%	100%
Other agencies or consultants involved	50%	30%
Mobile source emissions estimates	25%	70%
Other agencies or consultants involved	50%	30%

# Socioeconomic/Land Use Forecasting Procedures



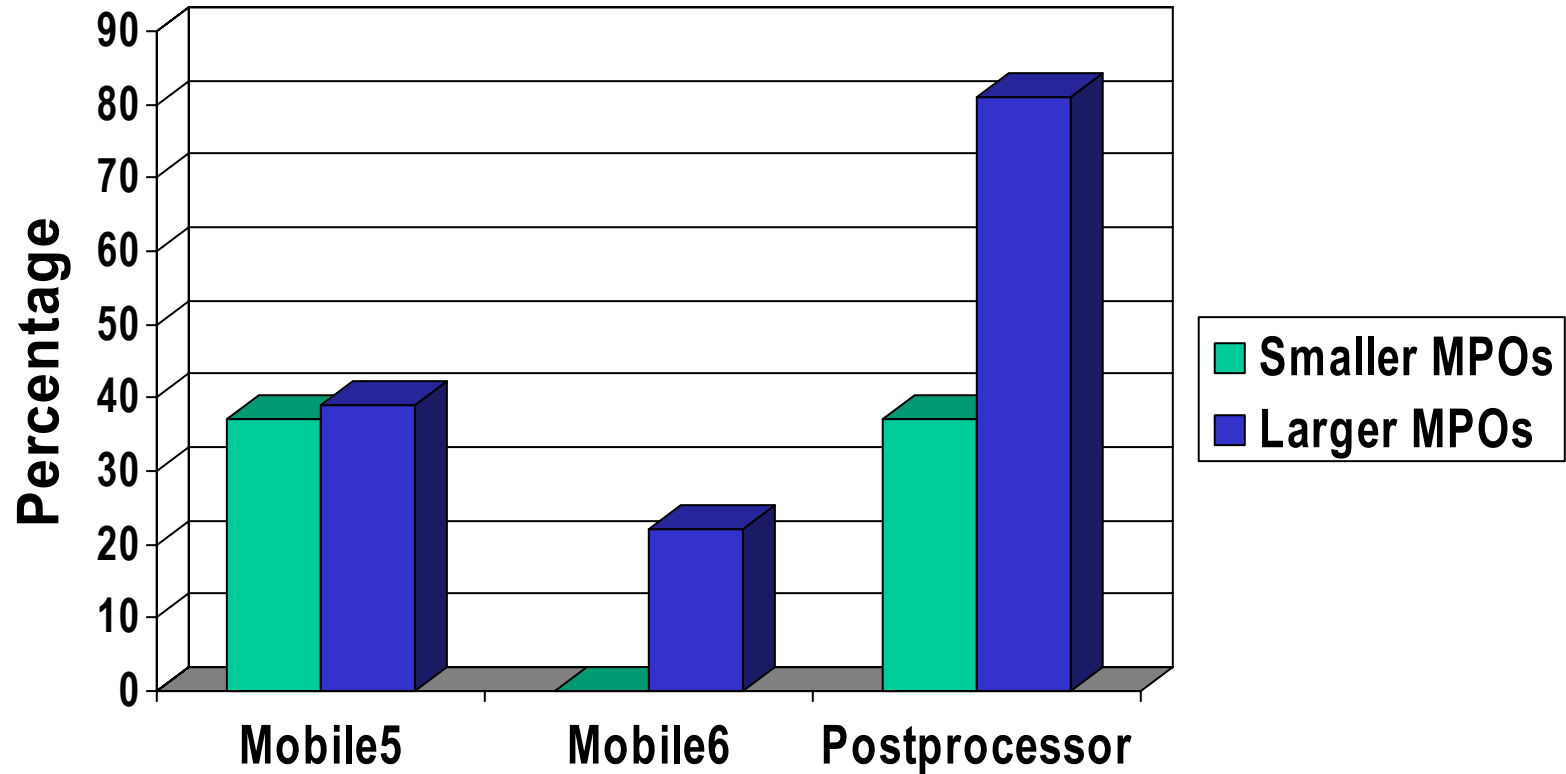
# Type of Travel Demand Model



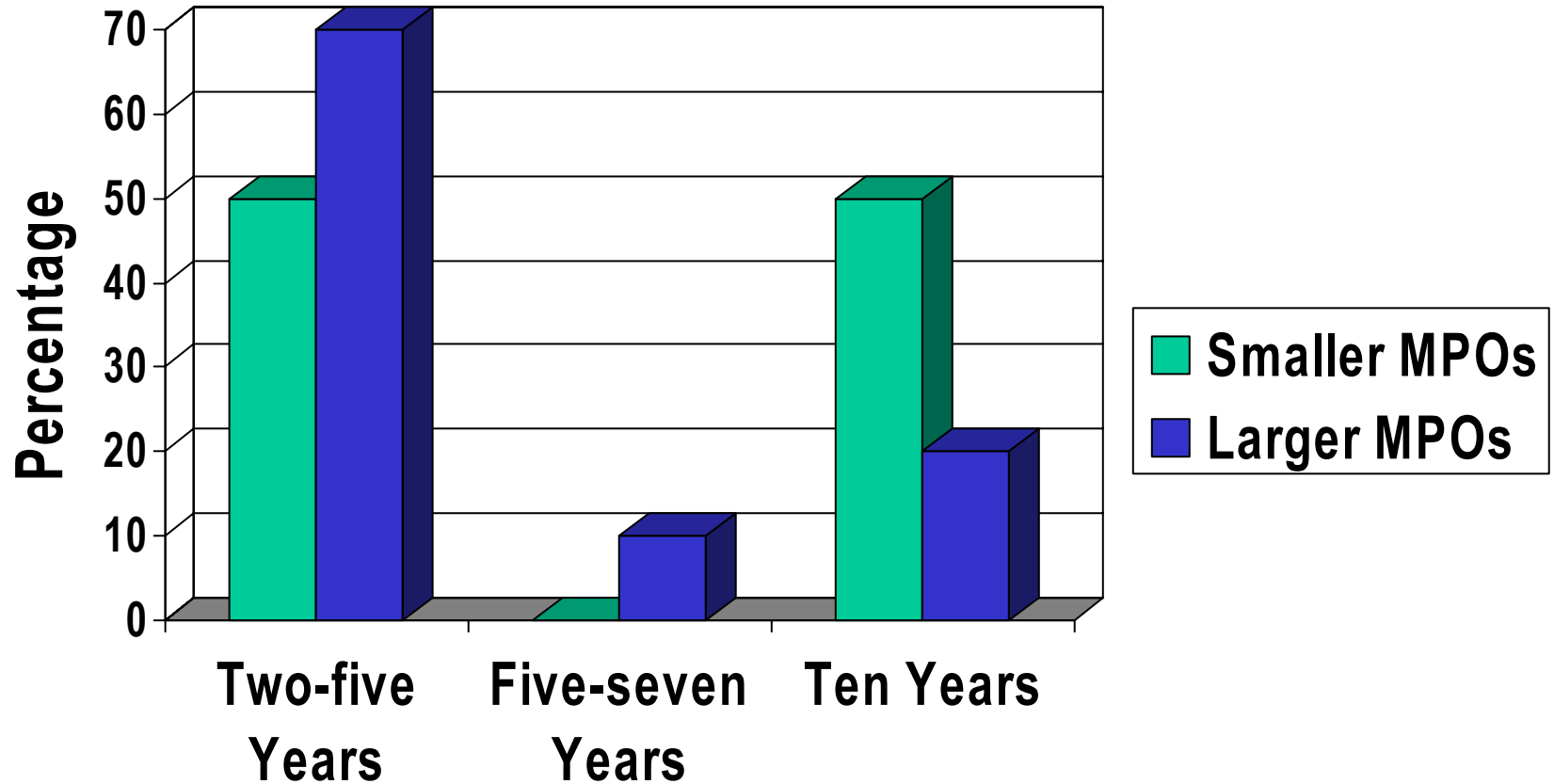
# *Travel Demand Forecasting Procedures*

<u>Model Characteristics:</u>	<u>Smaller MPOs</u>	<u>Large MPOs</u>
Model includes public transit	38%	87%
Model includes non-motorized travel	25%	32%
Model estimates truck/commercial vehicle trips	13%	32%
Model has a congested time feedback loop	25%	64%
Forecasts have credibility	100%	95%

# Mobile Source Emissions Procedures



# *Travel Demand Model Validation Frequency*



# *Travel Demand Model Validation*

	<b>Smaller MPOs</b>	<b>Large MPOs</b>
Use Census Journey-to-Work data	83%	86%
Collect home interview or other surveys	63%	70%
Transit and highway count data	100%	100%

# *Uses for Travel Forecasting Model Output*

<b>Output Use</b>	<b>Smaller MPOs</b>	<b>Large MPOs</b>
Facility design, MIS/EIS	75%	100%
TIP/Plan conformity	13%	62%
Long-range plan evaluation	87%	82%
Congestion/travel demand management	38%	55%
Evaluate land use scenarios	13%	18%
Environmental justice	13%	36%
ITS planning	38%	18%

# *Compliance with Conformity Rule Mandated Modeling Procedures*

<u>MPOs Covered by Conformity Rule:</u>	<u>Smaller MPOs</u>	<u>Large MPOs</u>
Validate every 10 Years	100%	100%
Land use/socioeconomic requirements	100%	77%
Capacity-restrained assignment	100%	100%
Peak and off-peak speeds and volumes	0%	92%
Congested travel time feedback loop	100%	85%
Models sensitive to time and cost factors	100%	100%
Expect change in attainment status as a result of the 8-hour standard	0%	50%

# *Compliance with Conformity Rule*

## *Mandated Modeling Procedures (Cont)*

<b>MPOs Exempt from Conformity Rule:</b>	<b>Smaller MPOs</b>	<b>Large MPOs</b>
Validate every 10 years	100%	100%
Land use/socioeconomic requirements	100%	100%
Capacity-restrained assignment	100%	100%
Peak and off-peak speeds and volumes	29%	50%
Congested travel time feedback loop	14%	33%
Models sensitive to time and cost factors	100%	100%
Expect change in attainment status as a result of the 8-hour standard	57%	75%

# Planned Land Use Model Improvements

	Smaller MPOs	Large MPOs
<b>Enhancement:</b>		
Implement land use model	13%	9%
Upgrade land use model	0%	36%
Implement transportation/ land use feedback loop	25%	23%
Enhance GIS aspects	0%	27%

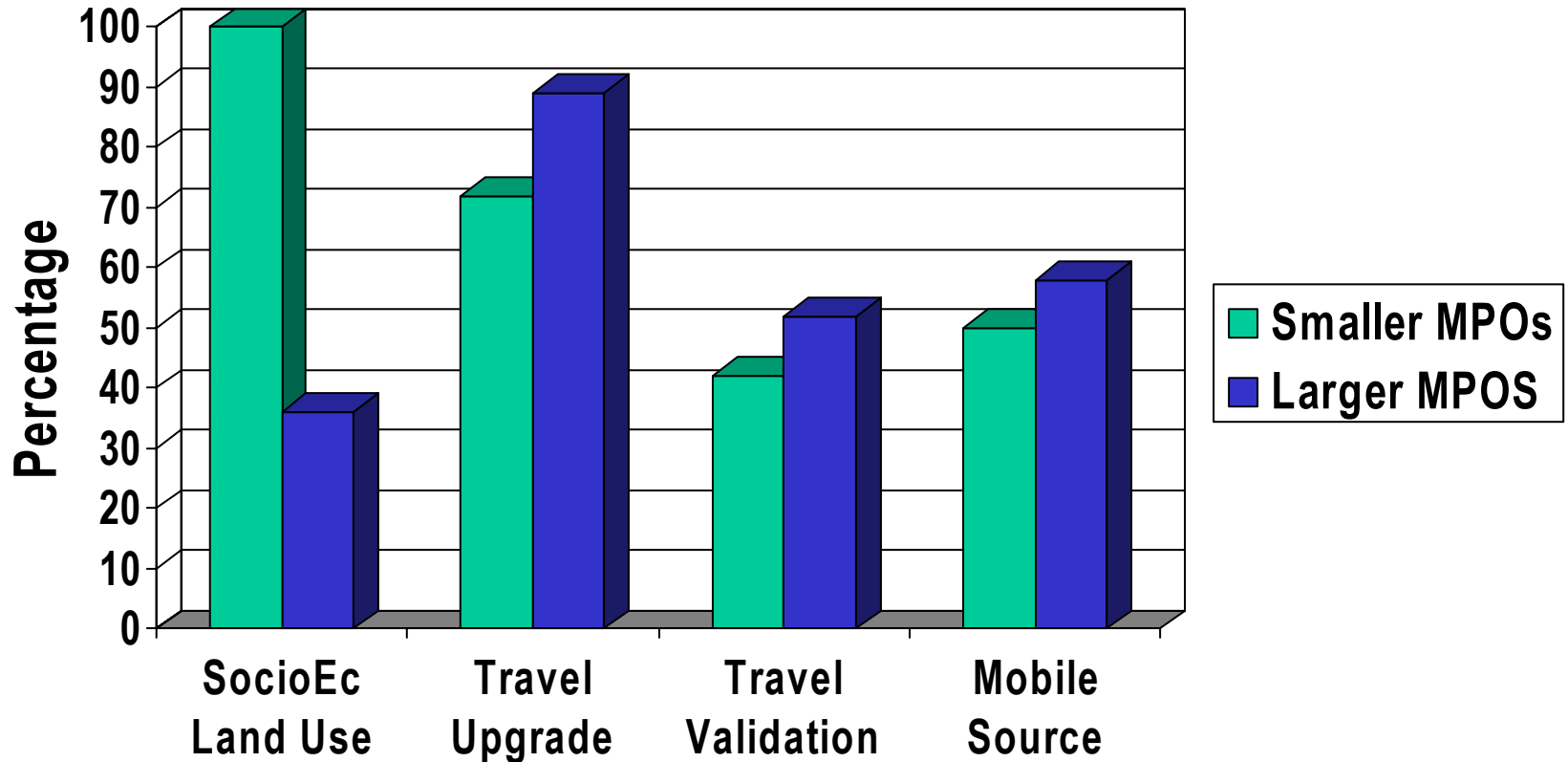
# *Planned Transportation Model Improvements*

<u>Enhancement:</u>	<u>Smaller MPOs</u>	<u>Large MPOs</u>
Upgrade/replace software	63%	59%
Implement activity based model	0%	27%
Implement separate peak and off-peak model	13%	5%
Implement congested times feedback loop	0%	9%
Enhanced GIS/Transportation interface	50%	45%

# *Planned Transportation Model Improvements (Cont)*

<b>Enhancement:</b>	<b>Smaller MPOs</b>	<b>Large MPOs</b>
Non-motorized travel	0%	14%
Transit modeling	13%	18%
Truck/commercial modeling	13%	18%
TRANSIMS	0%	9%

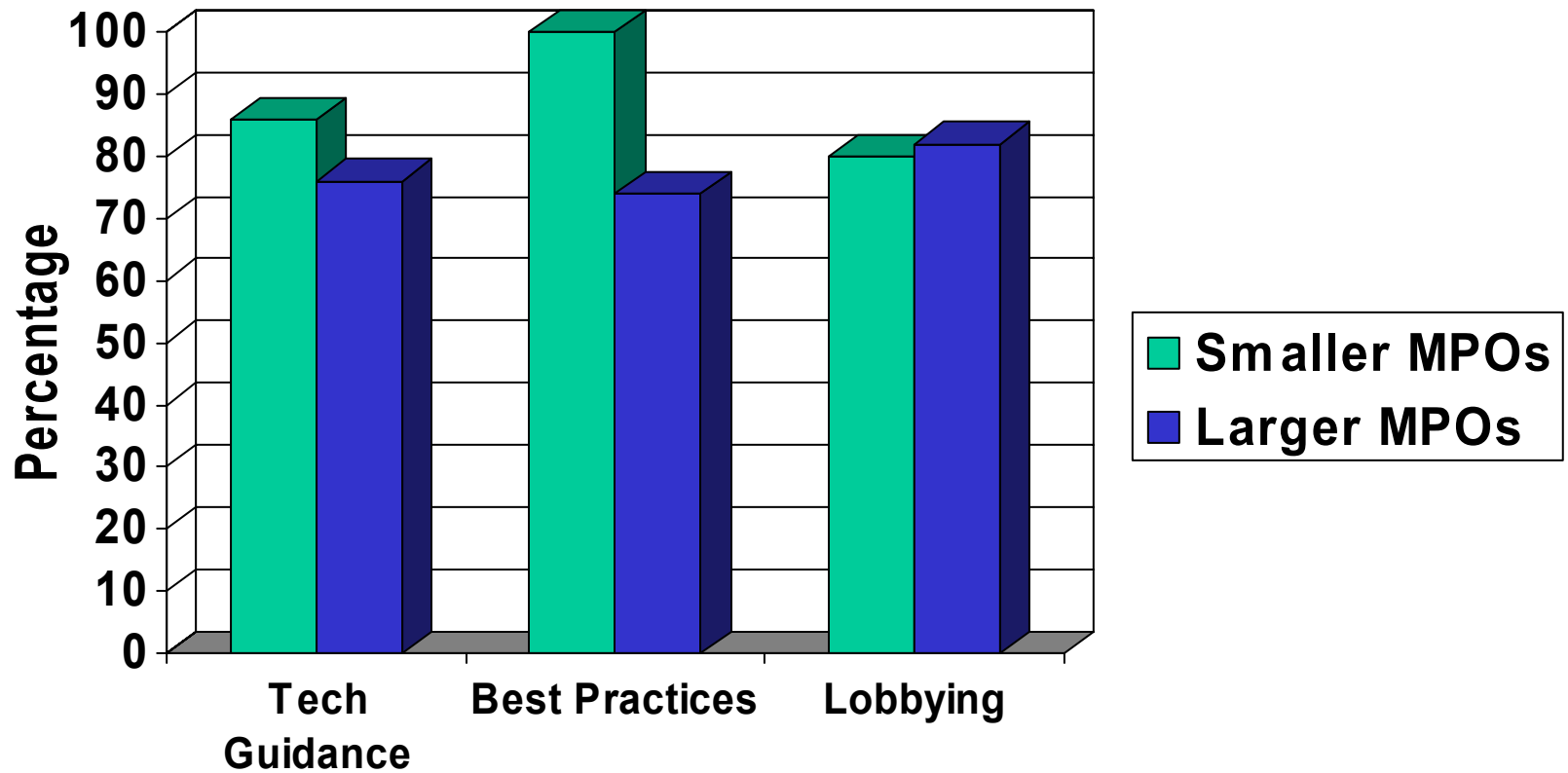
# Use Consultants to Upgrade Models



# *Planned Average Annual Model Maintenance and Upgrade Expenditures*

<u>Category</u>	<u>Smaller MPOs</u>	<u>Large MPOs</u>
Socioeconomic/land use models	\$40,000	\$180,000
Travel demand models	\$130,000	\$500,000
Mobile source emissions models	\$50,000	\$100,000
Total	\$220,000	\$780,000

# *NARC's Role in Promoting Modeling*



# *Future Uses of Land Use and Transportation Models*

- **Transportation facility construction and the expansion**
- **Land use planning and growth management**
- **Travel demand management**
- **Economic and environmental justice**
- **Environmental and air quality planning**

# *Specific Legislative Proposals*

- 1. Funding for model maintenance, and upgrade.**
- 2. MPOs should be given modeling flexibility.**
- 3. Detailed model specification issues should not be addressed.**

## *Specific Legislative Proposals (Cont)*

4. New transportation initiatives should include funding for required model upgrades.
5. Model requirements should be coordinated with Census and survey data availability.
6. Provide for MPOs who are non-attainment because of the 8-hour standard.

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