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## *Agency Background*

1. What is your agency's name?
2. What type of agency are you?
    a) State DOT
    b) MPO (Metropolitan Planning Organization)/COG (Council of Governments)/RTPO (Regional Transportation Planning Organization)
    c) Toll agency
    d) Transit agency
    e) Other (please specify):
3. Which of the following documents/studies is your agency responsible for producing? Please select all that apply.
    a) Long Range Transportation Plans
    b) Transportation Improvement Programs
    c) Air Quality Conformity Demonstrations
    d) Environmental Assessments/Environmental Impact Statements
    e) Traffic Impact Fee Assessments
    f) Other (please specify): _____
4. What is the status of tolling within your agency's jurisdiction?
    a) Existing toll facilities
    b) No existing, but planning for toll facilities
    c) No existing or currently planned toll facilities
5. What fixed route transit services are available within (all or a portion of) your planning jurisdiction? Please select all that apply.
    a) Conventional local or local/express bus service
    b) Bus Rapid Transit (BRT)
    c) Rail transit
6. Which of the following data/analysis products does your agency produce in the course of

its mission? Please select all that apply.

    a) Population/Employment Growth Projections (state/regional/county control totals)

    b) Future Land Use Patterns (TAZ or parcel level)

    c) Regional Emissions Estimates

    d) Hot-spot Emissions Analyses

    e) Transit Ridership Forecasts for FTA

    f) Traffic Forecasts for Roadway Design Projects

    g) Traffic and Toll Revenue Forecasts

    h) Freight or Truck Forecasts

    i) Benefit-Cost Analyses of Transportation Projects

    j) Economic Impact Analyses of Transportation Projects

    k) Environmental Justice Analyses of Transportation Projects

    l) Pedestrian/Cyclist Activity Forecast

    m) Other (please specify):_____

7. How important are quantitative analysis/performance measures to your agency's decision makers (e.g. Policy Board, Commissioner, etc.)?
   a) Extremely Important
   b) Very important
   c) Somewhat Important
   d) Not very important
   e) Not at all important

## *Planning Issues of Interest*

8. If you could improve your agency's analysis capabilities for only <u>one planning issue</u>, what would it be? Please provide as much detail as you can.

9. For each of the following please indicate, as best you can, the importance of the following issues to your agency as a whole: *Randomize list of answer choices with each topic area*.

| Issue | Extremely Important | Very Important | Important | Not very Important | Not at all Important |
|---|---|---|---|---|---|
| **Transportation** | | | | | |
| Road/Corridor Pricing | | | | | |
| Mobility/Congestion Reduction | | | | | |
| Transit | | | | | |
| Travel Demand/Congestion Management | | | | | |
| Long Distance Travel | | | | | |
| Traffic Operations/Systems Management | | | | | |
| Travel Time Reliability | | | | | |
| Asset/Infrastructure Conditions | | | | | |
| **Economics** | | | | | |
| Economic Impacts/ Cost Effectiveness | | | | | |
| Freight | | | | | |
| Visitors/Seasonal Residents | | | | | |
| Economic Development | | | | | |
| **Environmental** | | | | | |
| Environmental Impacts | | | | | |
| Air Quality/Climate Change | | | | | |
| Environmental Justice/Equity | | | | | |
| **Quality of Life** | | | | | |
| Sustainability/Livability | | | | | |
| Walking/Biking/Active Transportation | | | | | |
| Safety | | | | | |
| School Transportation | | | | | |

| Issue | Extremely Important | Very Important | Important | Not very Important | Not at all Important |
|---|---|---|---|---|---|
| Transportation for Seniors | | | | | |
| Growth | | | | | |
| Smart Growth/Transit-Oriented Design/Built Environment | | | | | |
| Demographics/Evolution | | | | | |
| Migration | | | | | |

Optional: Please provide a short description of any other issues not listed on the previous pages that are important to your agency.

| |
|---|

## *Existing Analytical Data, Tools and Methods*

10. Does your agency have or have access to a GIS database of all land parcels within your planning jurisdiction?

    a) Yes

    b) No

    c) I don't know

11. When was the last time your agency conducted (or participated in) the following types of surveys?

| Survey Type | In the last 1-2 years | 3-5 years ago | 6-10 years ago | More than 10 years ago | Never or not that I know of |
|---|---|---|---|---|---|
| Household travel survey | | | | | |
| Establishment travel survey | | | | | |
| Transit on-board survey | | | | | |
| Visitor survey | | | | | |
| External cordon line origin-destination survey | | | | | |
| Corridor or other special origin-destination survey | | | | | |
| Freight survey | | | | | |
| Stated preference survey | | | | | |
| Parking survey | | | | | |
| Longitudinal panel survey | | | | | |
| Customer satisfaction/public opinion survey | | | | | |

12. Please describe your agency's use or interest in using the following data sources. *Randomize list of answer choices*

| Data Source | Already Use/Have used | Very Interested in Using | Somewhat Interested in Using | Not Interested |
|---|---|---|---|---|
| Archived operational traffic data | | | | |
| Commercial travel time data (INRIX, NavTeq, TomTom, AirSage, etc.) | | | | |
| Web-based routing/travel time data (Google, MapQuest, etc.) | | | | |
| Transit operational data on actual vehicle headways | | | | |
| Electronic transit fare and toll collection data | | | | |
| Tablet-based on-board surveys | | | | |
| Smart phone surveys | | | | |
| GPS-equipped household surveys | | | | |
| Passively collected origin-destination data (ATRI, AirSage, TomTom, Bluetooth, etc.) | | | | |

13. [If already used passive origin-destination data] Which passive origin-destination data collection technology have you used? Please select all that apply.

    a) GPS based
    b) Cell phone based
    c) Bluetooth based

14. If your agency purchases propriety data when a free alternative is available, (e.g., InfoGroup employment data rather than Census LEHD, IHS Global Insight Transearch Data rather than FHWA FAF, etc.) what motivates this decision? Please provide as much detail as you can.

    Also show checkbox for: My agency doesn't purchase proprietary data when a free alternative is available

15. How would it impact your agency if the following federal data sources were discontinued? Please note this is a hypothetical question only. *Randomize list of answer choices*

| Data Source | Major Impact | Minor Impact | No Impact | Don't Know |
|---|---|---|---|---|
| Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) | | | | |
| Census Bureau's American Communities Survey (ACS) Journey to Work Data | | | | |
| Census Transportation Planning Package (CTPP) | | | | |
| Census Bureau's County Business Patterns | | | | |

| Data Source | Major Impact | Minor Impact | No Impact | Don't Know |
|---|---|---|---|---|
| Bureau of Economic Analysis's Regional Economic Accounts | | | | |
| Federal Highway Administration's National Household Travel Survey (NHTS) | | | | |
| Bureau of Transportation Statistics' Commodity Flow Survey (CFS)/Federal Highway Administration's Freight Analysis Framework (FAF) | | | | |

16. Does your agency document its decision process <u>to develop or acquire</u> analysis tools/methods?
    a) Yes
    b) No

17. Does your agency document its decision process to use an analysis tool/method for a particular project or program?
    a) Yes
    b) No

18. [If agency produces Future Land Use Patterns (6b)] You responded that your agency develops future land use allocations. How does your agency allocate growth in population and employment to traffic analysis zones (parcels or other detailed unit of geography)? Please select all that play a major role in your process.
    a) Based on Current Distribution
    b) Based on Recent Growth
    c) According to Master Plan/Zoning
    d) Delphi Panel/Expert Process/Negotiation
    e) Public Visioning Process
    f) Land Use Planning Tool (CommunityViz, i-PLACE3S, EnvisionTomorrow, etc.)
    g) Land Use Forecasting Model (UrbanSim, PECAS, DRAM/EMPAL, CubeLand, etc.)
    h) Home-grown land use allocation tool
    i) Other (please specify) _____

19. [If Yes to Land Use Planning Tool and/or Land Use Forecasting Model (18f and/or g)] How long has your agency been using this tool?
    a) Still under development
    b) 1 year or less
    c) 2 years
    d) 3-5 years
    e) 5-10 years
    f) More than 10 years
    g) I don't know

20. [If NO to Land Use Planning Tool and/or Land Use Forecasting Model (18f and/or g)] Is your agency considering use of a land use model/visioning tool?
    a) No, we are content with our current methods
    b) Yes, we are considering such tools but have no definite plans
    c) Yes, we plan to purchase/develop a land use tool/model within the next three years

21. What role do travel demand models play in your agency in developing traffic/transit/freight forecasts?
    a) We do not have a travel demand model. We rely entirely on other methods (sketch planning models, growth factoring, diversion curves, etc.).
    b) We have a travel demand model but use it in conjunction with other independent methods (sketch planning models, growth factoring, diversion curves, etc.).
    c) We have a travel demand model and generally rely exclusively on its direct outputs.
    d) We have a travel demand model, but typically post-process or otherwise adjust its outputs to produce forecasts.

22. [If agency has a travel model (21b,c,d)]Please rank the following uses of your agency's travel demand model in order of importance where 1 is most important and 10 is least important to your agency. Note that you can only use each number once.
    a) Long Range Plan Development
    b) Transportation Improvement Program (TIP) Development
    c) Air Quality Conformity Demonstrations
    d) NEPA Alternatives Analysis
    e) Design Forecasts
    f) Traffic Operational Planning/Travel Demand Management
    g) Transit Studies
    h) Freight Studies
    i) Traffic Impact Studies
    j) Traffic Operational Studies

23. [If agency has a travel model (21b,c,d)] Which of the following modes does your travel model forecast? Please select all that apply.
    a) Transit
    b) Walk/bike
    c) Trucks
    d) Other freight mode(s) (e.g., rail, barge, etc.) (please specify)

24. [If agency has a travel model (21b,c,d)] Which framework is your current travel model?
    a) Trip-based
    b) Tour-based (trips linked into tours)
    c) Activity-based (trips and tours linked into daily patterns)
    d) Other (e.g. Tour for work trips only)

25. [If agency has trip-based travel model (24a)] Is your agency moving towards a tour or activity- based model?
    a) No
    b) Undecided
    c) Yes, but no concrete plans/timeframe uncertain
    d) Yes, next model update, not underway
    e) Yes, efforts currently underway

26. [If agency has a travel model (21b,c,d)] Do you know the precision of your agency's travel model? For example, can you specify a confidence interval around your model's forecasts (e.g., plus or minus X)?
    a) Yes
    b) No

27. [If agency has a travel model (21b,c,d)] Do your travel model's forecasts reflect the following?
    *Randomize list of answer choices*

| Variable | Yes, adequately reflects | Yes, but maybe not adequately | No, it does not consider | I Don't Know |
|---|---|---|---|---|
| Age of Travelers | | | | |
| Different built environments (e.g., Mixed Use Developments) | | | | |
| Walk/bike suitability of neighborhoods | | | | |
| Roadway tolls | | | | |
| Parking costs | | | | |
| Fuel prices | | | | |
| Accessibility [to jobs, to shopping, etc.] | | | | |
| Service characteristics other than time/cost, such as reliability, real-time information, comfort, safety, etc. | | | | |
| Employer policies such as flex-time, free parking for carpooling, subsidized transit passes, etc. | | | | |
| ITS policies such as ramp metering, speed harmonization, incident management, etc. | | | | |

28. Besides land use/travel demand models, which of the following tools has your agency used (directly or through consultant assistance) within the past three years? Please select all that apply for tools that your agency uses regardless of whether they were developed in-house or by outside consultants.
    a) Sketch planning tools (IDAS, SPASM, SMITE, etc.)
    b) Strategic models (SmartGAP, GreenSTEP, EERPAT, etc.)
    c) Dynamic traffic assignment (DTA) (CUBE Avenue, TransModeler, TRANSIMS, VISTA, DynaSmart, DynusT, DynaMIT, etc.)
    d) Traffic microsimulation model (VISSIM, TransModeler, Paramics, CORSIM, etc.)
    e) Analytic/deterministic/optimization traffic tool (McTrans HCS/HCM, Synchro, TEAPAC, TRAFFIX, etc.)
    f) General decision support tools (Decision Lens, Expert Choice, etc.)

g) Economic impact/Benefit-cost tool (TREDIS, REMI, STEAM, T-PICS, HERS, Cal-B/C, NET-BC, MicroBENCOST, HDM4, etc.)

h) Crash forecasting tool (HSM/IHSDM, SafetyAnalyst, etc.)

i) Project (lifecycle) costing tool (RealCost, etc.)

j) Vehicle emissions models (MOVES, EMFAC, MOBILE)

k) Air dispersion model (AERMOD, CAL3QHC or similar)

l) Noise impact model (FHWA's TNM or similar)

n) Data visualization/visual analytics (ESRI, CADD, Adobe, etc.)

o) Other (please specify)

29. [If Sketch Planning Tools or Strategic Models (28 a or b)] Has your agency developed any in-house strategic models or sketch planning tools in the past three years? Please select all that apply.

a) Yes, custom scripts (please describe)

b) Yes, custom software (please describe)

c) Yes, other tool(s) (please describe)

d) No

30. [Did NOT select dynamic traffic assignment (NOT 28c)] Is your agency moving towards a dynamic traffic assignment?

a) No

b) Undecided

c) Yes, but no concrete plans/timeframe uncertain

d) Yes, next model update or planning cycle, not underway

e) Yes, efforts currently underway

31. Does your agency summarize and present uncertainty in your analyses and forecasts to senior decision-makers (e.g. Executive Director, Policy Board, etc.)?

a) Yes

b) No

32. [If agency summarizes/presents uncertainty (31a)] How does your agency summarize and present uncertainty in your analyses and forecasts to senior decision-makers (e.g. Executive Director, Policy Board, etc.)? Please provide any detail around the format or structure used to present uncertainty and risk.

33. Does your agency conduct "before and after" comparisons of forecasts and other analyses?

a) Yes, on a regular/planned basis

b) Yes, at least once, but irregularly

c) No

34. Does your agency have a formal risk management process/program?

a) Yes

b) No

c) I don't know

35. Does your agency have a formal quality control or quality assurance process/program?

a) Yes, and it is applied effectively to planning analyses
b) Yes, but the process may not adequately ensure the quality of planning analyses
c) No
d) I don't know

## *Critical Challenges for Planning Analysis*

36. What is the greatest threat to your agency's credibility with senior decision-makers or the public?

37. What is the greatest threat to your agency's ability to provide accurate information to support transportation decision-making?

38. What is the greatest opportunity to improve your agency's credibility or ability to provide accurate information to support transportation decision-making?

39. What technical issue has caused the greatest difficulty for your planning analyses? If able, please describe an example of the problem encountered.

40. Please rank the importance of the following general challenges according to how they affect your agency's ability to conduct analyses to further its planning mission, where 1 is most important and 9 is least important to your agency. Note that you can only use each number once: *Randomize list of answer choices*
    a) Limited budgets for planning analysis/high costs of planning analysis
    b) Limited staff/staff time for planning analysis
    c) Limited staff training/training opportunities
    d) Planning cycles/deadlines
    e) Lack of data or poor data quality
    f) Limited ability of existing/available analysis tools/methods to provide needed information
    g) Cost/time required by existing/available analysis tools/methods
    h) Inherent uncertainties about the future
    i) Limited computing resources/runtime considerations

41. Please allocate **150 points among the following 15 technical challenges** according to how important addressing them is to improving your agency's ability to conduct analyses to further its planning mission. (More points = More important) Your thoughtful response is appreciated as your allocations will help FHWA prioritize its efforts.

*Note: randomize statements within each category (fundamental tool limitations, etc.)*

*Note: if easy, randomize categories of statements, but always keeping "Other" anchored at the bottom*

*Note: If reasonable, still show the tally/total at the bottom of the page, but don't require exactly 50 points. Also if reasonable, don't allow to put negative numbers or more than 150 points in a given box.*

a) *Fundamental Tool Limitations*
    i. Slow models/tools with long run times that limit their usefulness
    ii. Inability of available tools/methods to produce accurate estimates of travel times, travel time reliability and/or delay
    iii. Inability of available tools/methods to produce accurate estimates of passenger travel/volumes by origin/destination location, mode, and socioeconomic characteristics of the traveler
    iv. Inability of available tools/methods to produce accurate estimates of freight demand, truck movements/volumes, etc.
    v. Poor or limited understanding of the uncertainty/precision associated with tools/methods

b) *Poor or Uncertain Quality of Inputs*
    i. Inaccurate or uncertain land use forecasts or problems with forecasts of socioeconomic variables such as income and automobile ownership
    ii. Poor representation of transportation supply including free flow travel times and capacities (for intersections as well as road segments)

c) *Poor Model Resolution*
    i. Poor spatial resolution: Inability of available tools/methods to deal with small scale projects and phenomenon (e.g., walking, biking)
    ii. Poor temporal resolution: Inability of available tools/methods to produce results with enough temporal detail (e.g., need for hourly or peak 15 minute traffic, poor handling or peak spreading, etc.)
    iii. Poor demographic/market resolution: Inability to identify who benefits or is impacted or to conduct equity or environmental justice analyses
    iv. Poor representation of special, high value or high impact travel (e.g., long distance travel, business-related travel, tourism/visitor travel)

d) *Lack of Sensitivity to Policies or Other Factors Affecting Transportation*
    i. Lack of sensitivity to built environment, walkability, etc., in available tools/methods
    ii. Lack of sensitivity to supply characteristics in available tools/methods (e.g., parking costs, comfort, traveler information, etc.)
    iii. Inability of available tools/methods to evaluate employer policies such as flex-time, free parking for carpooling, subsidized transit passes, etc.
    iv. Inability of available tools/methods to evaluate ITS policies such as ramp metering, speed harmonization, incident management, etc.

e) *Other*
    i. Other (please specify) _____

42. On the previous question you assigned points to an "other" category. Please provide any detail around what you had in mind for "other".

## *Focusing Priorities*

43. If your agency could acquire one type of data it currently does not have, what would it be?

44. If you could do one thing to improve your agency's existing analysis tools/methods, what would it be?

45. If you could acquire one new tool for your agency, what would it be? You can name an actual existing tool or describe a tool that may not exist but you would like to see.

46. How could FHWA best help your agency improve its travel modeling and related analyses?

47. Do you have any novel ideas (or new tools/methods your agency has developed) for advancing the state of the practice that you would like to share with FHWA?

48. How interested would you be in seeing FHWA present information on post-processing tools/methods for the following variables? *Randomize list of answer choices*

| Variable | Very Interested | Somewhat Interested | Not Interested |
|---|---|---|---|
| Accessibility (To jobs, etc., by various modes) | | | |
| Travel Time Reliability | | | |
| User Benefits (Time & cost savings, etc.) | | | |
| Economic Impacts (Jobs, Income, etc.) | | | |
| Emissions (for criteria pollutants: PM, ozone, etc.) | | | |
| Greenhouse gases | | | |
| Health - Physical Activity | | | |
| Environmental Justice/Equity | | | |
| Safety (crashes, crash rates) | | | |

49. Please allocate 100 points among the following 20 tools/information that FHWA might provide according to how helpful they would be for your agency. (More points = more helpful) Your thoughtful response is appreciated as your allocations will help FHWA prioritize its efforts.

*Note: randomize statements within each category (fundamental tool limitations, etc.)*

*Note: if easy, randomize categories of statements, but always keeping "Other" anchored at the bottom*

*Note: If reasonable, still show the tally/total at the bottom of the page, but don't require exactly 100 points. Also if reasonable, don't allow to put negative numbers or more than 100 points in a given box.*

a) <u>Data</u>
   i. Data (TAZ data, counts, etc.) consistency checking tools
   ii. Summary of uncertainty in regional socioeconomic growth forecasts
   iii. New methods to incorporate observed speed/travel time data in models
   iv. Examples of how to expand samples of passively collected origin-destination data

b) <u>Simplified Modeling Tools/Techniques</u>
   i. Managed lane feasibility spreadsheet based tool for estimating hourly volumes on managed lanes based on regional travel model data, time-of-day distributions and toll rates
   ii. Peak-spreading spreadsheet based tool for estimating the effects of pricing or congestion on the time-of-day of highway traffic

c) <u>Modeling Fundamentals & Basic Structural Improvements</u>
   i. How-to Guides for developing standard practice model components (How-to Guide to Trip Generation, etc.)
   ii. Helpful insights on the "nuts & bolts" of models (options for balancing, single vs. double constraints, etc.)
   iii. Examples of data driven approaches to modeling travel demand (data-based trip tables)
   iv. Examples of methods to improve the handling of non-home-based trips in trip- based models

d) <u>Comparisons of Alternative Methods</u>
   i. Comparisons of various methods of representing intersection delays in static assignments
   ii. Comparisons of activity-based and four-step models
   iii. Comparisons of gravity and destination choice models
   iv. Comparison of various methods and criteria for feedback convergence

e) <u>Accuracy, Sensitivity and Uncertainty in Forecasting</u>
   i. Review/illustrations of techniques for quantifying uncertainty in forecasts and communicating it to decision-makers
   ii. Retrospective (predicted vs. actual) studies of traffic forecasting accuracy
   iii. Documenting standard sensitivity/dynamic validation tests and ranges of reasonable results

f) <u>Examples of Good Practice in Communicating Results</u>
   i. Sharing methods for calculating accessibility measures to report the impacts of transportation projects/plans
   ii. Examples of new methods for estimating public health impacts of physically active modes of transportation

      iii. Examples of best practices in visualization of travel analysis results

   g) *Other*

      i. Other (please specify) _____

50. On the previous question you assigned points to an "other" category. Please provide any detail around what you had in mind for "other".

>  

51. Person responsible for providing this information
   a) Name
   b) Position
   c) Email
   d) Phone Number

52. Would you be willing to be contacted for follow-up interviews?
   a) Yes
   b) No

Thank you for your participation. Your answers will help FHWA focus its resources on areas of greatest need to the agencies it serves.