Forum Agenda

- 2016 Travel Behavior Survey
- ABM Calibration Report
- Data Integrity
Survey Design

- Address-based sample
- Two options for trip diary participation
  - rMove smartphone app
  - Online reporting
- Additional surveys
  - Group quarters on military bases
  - Bike intercept survey
# Sampling Frame

<table>
<thead>
<tr>
<th>Type</th>
<th>Definition (Using block groups)</th>
<th>Behavior Threshold</th>
<th>Oversample Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transportation Oversample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bicycle Commuters</td>
<td>% of workers biking to work</td>
<td>4.5%+</td>
<td>4.0x</td>
</tr>
<tr>
<td>Walk or Bicycle Commuters</td>
<td>% of workers walking or biking to work</td>
<td>13.0%+</td>
<td>4.0x</td>
</tr>
<tr>
<td>Transit Commuters</td>
<td>% of workers taking transit to work</td>
<td>12.1%+</td>
<td>4.0x</td>
</tr>
<tr>
<td>Zero Vehicle Households</td>
<td>% of households with no vehicle</td>
<td>22.1%+</td>
<td>4.0x</td>
</tr>
<tr>
<td><strong>Hispanic, Spanish, and Low Income Oversample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic Ethnicity Households</td>
<td>% of Hispanic households</td>
<td>71.4%+</td>
<td>2.5x</td>
</tr>
<tr>
<td>Spanish Speaking Households</td>
<td>% of Spanish speaking households</td>
<td>59.5%+</td>
<td>2.5x</td>
</tr>
<tr>
<td>Low Income Households</td>
<td>% with household annual incomes &lt;$25K</td>
<td>37.6%+</td>
<td>2.5x</td>
</tr>
<tr>
<td><strong>Other oversample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Duty Military</td>
<td>% active military (age 16 or older)</td>
<td>9.6%+</td>
<td>2.0x</td>
</tr>
<tr>
<td>College Student</td>
<td>% enrolled in higher education</td>
<td>19.7%+</td>
<td>2.0x</td>
</tr>
<tr>
<td>Young, Non-Family Household</td>
<td>% of households with householder under 35 and non-family</td>
<td>36.2%+</td>
<td>2.0x</td>
</tr>
<tr>
<td><strong>No oversample</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Downtown San Diego</td>
<td>15 specific block groups</td>
<td>N/A</td>
<td>1.0x</td>
</tr>
<tr>
<td>General Population</td>
<td>All other block groups</td>
<td>N/A</td>
<td>1.0x</td>
</tr>
</tbody>
</table>
## Sample Plan

<table>
<thead>
<tr>
<th>Block Groups</th>
<th>Households</th>
<th>Invitations</th>
<th>Invitation Rate (relative to gen. pop.)</th>
<th>Est. Complete Households</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.0x oversample</strong></td>
<td>291 (16.2%)</td>
<td>169,354 (15.6%)</td>
<td>94,000 (37.4%)</td>
<td>55.5% (4.0x)</td>
</tr>
<tr>
<td><strong>2.5x oversample</strong></td>
<td>207 (11.5%)</td>
<td>101,971 (9.4%)</td>
<td>35,400 (14.1%)</td>
<td>34.7% (2.5x)</td>
</tr>
<tr>
<td><strong>2.0x oversample</strong></td>
<td>101 (5.6%)</td>
<td>63,967 (5.9%)</td>
<td>17,800 (7.1%)</td>
<td>27.8% (2.0x)</td>
</tr>
<tr>
<td><strong>1.0x sample</strong> (General Population)</td>
<td>1,190 (66.3%)</td>
<td>748,519 (69.1%)</td>
<td>104,000 (41.5%)</td>
<td>13.9% (1.0x)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,795*</td>
<td>1,083,811</td>
<td>251,200</td>
<td>23.2% (1.67x)</td>
</tr>
<tr>
<td><strong>Transportation oversample</strong></td>
<td>291 (16.2%)</td>
<td>169,354 (15.6%)</td>
<td>94,000 (37.4%)</td>
<td>55.5% (4.0x)</td>
</tr>
<tr>
<td><strong>Hispanic, Spanish, &amp; Low-inc. oversample</strong></td>
<td>320 (17.8%)</td>
<td>164,109 (15.1%)</td>
<td>69,910 (27.8%)</td>
<td>42.6% (3.1x)</td>
</tr>
<tr>
<td><strong>Other oversample</strong></td>
<td>184 (10.3%)</td>
<td>121,180 (11.2%)</td>
<td>48,030 (19.1%)</td>
<td>39.6% (2.9x)</td>
</tr>
</tbody>
</table>
### Preliminary Results

#### Compared to Prior Study

<table>
<thead>
<tr>
<th>Region</th>
<th>2016-2017</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>~6,199</td>
<td>3,536</td>
</tr>
<tr>
<td>Persons</td>
<td>12,237</td>
<td>8,516</td>
</tr>
<tr>
<td>Person-Days of Travel</td>
<td>61,179</td>
<td>8,516</td>
</tr>
<tr>
<td>Trips</td>
<td>282,145</td>
<td>34,179</td>
</tr>
<tr>
<td>GPS Points</td>
<td>&gt;10 million</td>
<td>n/a</td>
</tr>
<tr>
<td>People per Household</td>
<td>~2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Trips per Person-Day</td>
<td>~5.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*Preliminary figures. Please do not share.*
### Preliminary Results (continued)

#### Active Transportation

<table>
<thead>
<tr>
<th>Sample Segment</th>
<th>Completed mMove Trips</th>
<th>Walk</th>
<th>Transit</th>
<th>Bike</th>
<th>Any of these modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Population</td>
<td>135,000</td>
<td>10.5%</td>
<td>1.3%</td>
<td>0.7%</td>
<td>12.4%</td>
</tr>
<tr>
<td>Hispanic Oversample</td>
<td>19,000</td>
<td>10.3%</td>
<td>2.6%</td>
<td>0.3%</td>
<td>13.1%</td>
</tr>
<tr>
<td>Other Oversample</td>
<td>21,000</td>
<td>17.6%</td>
<td>2.4%</td>
<td>1.1%</td>
<td>20.8%</td>
</tr>
<tr>
<td>Transportation Oversample</td>
<td>80,000</td>
<td>17.5%</td>
<td>3.2%</td>
<td>1.5%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Total</td>
<td>255,000</td>
<td>13.3%</td>
<td>2.1%</td>
<td>1.0%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

*Walk, bike, & transit mode share without targeted oversampling (estimate)*  
14.0%

*Additional walk, bike, & transit trips due to targeted oversampling (estimate)*  
~5,400

*Preliminary figures. Please do not share.*
### Bike Intercept Survey

<table>
<thead>
<tr>
<th>Survey Flow</th>
<th>Conversion Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercepted</td>
<td>913</td>
</tr>
<tr>
<td>Completed Intercept Survey</td>
<td>846</td>
</tr>
<tr>
<td>Invited to rMove</td>
<td>507</td>
</tr>
<tr>
<td>Activated rMove</td>
<td>176</td>
</tr>
<tr>
<td>Completed rMove</td>
<td>108</td>
</tr>
<tr>
<td>Completed Recruit Survey</td>
<td>76</td>
</tr>
</tbody>
</table>

*Preliminary figures. Please do not share.*
### Bike Intercept Survey (continued)

<table>
<thead>
<tr>
<th>Trip Counts</th>
<th>Intercept</th>
<th>Main Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed rMove Trip Surveys</td>
<td>~4,000</td>
<td>~250,000</td>
</tr>
<tr>
<td>Trips with Bicycle as Mode</td>
<td>~1,000</td>
<td>~2,500</td>
</tr>
<tr>
<td>Cycling Trips Mode Share</td>
<td>25%</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Preliminary figures. Please do not share.
### Preliminary Results (continued)

- **Group Quarters on Military Bases**

<table>
<thead>
<tr>
<th>Base</th>
<th>Began Recruit Survey</th>
<th>Completed Recruit Survey</th>
<th>Completed Trip Dairy</th>
<th>Conversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marines</td>
<td>31</td>
<td>31</td>
<td>14</td>
<td>45%</td>
</tr>
<tr>
<td>Navy</td>
<td>21</td>
<td>20</td>
<td>12</td>
<td>59%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>52</td>
<td>27</td>
<td>52%</td>
</tr>
</tbody>
</table>

*Preliminary figures. Please do not share.*
Next Steps

- Data Review and Modeling Work
- Final Report
- Cooperative Household Travel Survey
ABM Calibration & Validation Report

Wu Sun

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Outline

- ABM calibration & validation report
  - Base year 2012
  - Base year 2014

- ABM Update (ABM2-Phase I)
  - Use 2016/2017 travel behavior survey
  - Base year 2015

- ABM Update (ABM2-Phase II)
ABM Timeline

Today’s Topics

- ABM Development 01/09-01/13
- AT Model & Preparation for SD Forward 01/13-12/13
- SD Forward Applications 01/14-10/15
- Enhancements & Calibration and Validation 10/15-current
- ABM Update w/ 2016/2017 HHTS for 2019 RTP Coming soon
Calibration & Validation

- **Model calibration**
  - Adjust model parameters

- **Model validation**
  - Base years—2012, 2014, and 2015
  - Model estimated vs. observed

- **Why so many calibration & validation efforts?**
  - Sociodemographic changes
  - Travel behavioral changes
  - Model improvements
  - New data sources
2012 Validation Report  
-Roadway Results

Estimated vs. Observed - All

$y = 1.021x$

$R^2 = 0.9602$
2012 Validation Report - Corridor Results

%Link(+) = 61%
%Link(-) = 39%
AvgGap(+) = 8%
AvgGap(-) = 9%
AvgGap(±) = 2%
GapIn(±10%) = 77%
GapIn(±20%) = 94%
GapIn(±30%) = 95%
Linear Slope = 1.022
RMSE = 10%
2012 Validation Report
- Transit Results

- Observed: 347
- Model w/ PopSyn II: 356, 2.70%
- Model w/ PopSyn III: 372, 7.20%
- Calibrated Model w/ PopSyn III: 351, 1.11%

Transit Ridership

Thousands

Diff%
2012 Validation Report - VMT Results

Vehicle Miles Traveled

<table>
<thead>
<tr>
<th>Target</th>
<th>VMT</th>
<th>Diff%</th>
</tr>
</thead>
<tbody>
<tr>
<td>79,435 Thousands</td>
<td>79,435</td>
<td>0.00%</td>
</tr>
<tr>
<td>Model w/ PopSyn II</td>
<td>79,289</td>
<td>-0.18%</td>
</tr>
<tr>
<td>Model w/ PopSyn III</td>
<td>79,036</td>
<td>-0.50%</td>
</tr>
<tr>
<td>Calibrated Model w/ PopSyn III</td>
<td>79,269</td>
<td>-0.21%</td>
</tr>
</tbody>
</table>

VMT Results

- Target: 79,435 Thousands
- Model w/ PopSyn II: 79,289 Thousands (-0.18%)
- Model w/ PopSyn III: 79,036 Thousands (-0.50%)
- Calibrated Model w/ PopSyn III: 79,269 Thousands (-0.21%)
2012 Validation Results -Corridor Speed Before
2012 Validation Results - Corridor Speed After
2014 Calibration & Validation

- Calibration and validation plan
- Observed data and templates
- Calibration targets
- Calibration model runs once population and employment inputs are finalized
ABM2-Phase I
2015 Calibration & Validation

- **ABM Update Phase I**
  - 2015 base year calibration & validation using travel behavior survey
  - No model estimation

- **More comprehensive than 2012 and 2014**
  - 2012 and 2014: selected model components
  - 2015: all model components

- **Schedule**
  - Kick off: late June 2017
  - Complete by end of 2017
ABM2-Phase II
Model Estimation & Development

- Estimation
  - Dynamics of up to date regional travel behaviors
  - Sociodemographic changes
  - Emerging transportation technologies
  - Transportation infrastructure investment impacts

- Calibration & Validation
  - Again!

- Improve model performance

- Schedule
  - kick off in 2018
Final Thoughts

- Model Calibration & Validation
  - Reflect changing demographic, economic, and travel environments, primarily...
  - Sometimes, it is driven by the need to maintain data integrity; example: household income adjustments
  - Is designed to QA/QC travel model outputs
Data Integrity

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Data Integrity

- The 7-Point Plan
- Income Distribution
- Growth Forecast life cycle policy
Data Integrity: 7-Point Plan

- Proposed Work Plan
  1. Conduct Detailed Review
  2. Conduct Dependency Analysis
  3. Map Modeling Process Flow
  4. Improve Data Governance
  5. Improve Review and Oversight
  6. Enhance Transparency
  7. Develop and formalize processes
Data Integrity: 7-Point Plan

1) Conduct Detailed Review

- **OBJECTIVE**
  Review and validate input data, transformations, and equations to ensure accuracy of data and integrity of model results

- **ACTION**
  Trace input from its source through transformations and model equations to the final reported outputs

- **RESULT**
  Documentation of errors and confirmation that SR13 Forecast contains no other problems
Data Integrity: 7-Point Plan

Demographic and Economic Forecasting Model
Forecasts demographic (population, housing, jobs, etc.) and economic (income, retail sales, GRP, etc.) data used as inputs in other SANDAG work products.

Inputs (1970–2012)
- 689 historic economic time series variables
- Moody’s national drivers

Sub-Models
- 136 interactive econometric equations
- Demographic and cohort modules

Outputs (2013–2048)
- 471 economic variables
- ~1,600 demographic variables
Data Integrity: 7

- Point Plan

Taxable Retail Sales

Used in estimating Measure A revenue and TransNet financial capacity
Data Integrity: 7-Point Plan

**Taxable Retail Sales**
\[ T_{RetS_t} = f(YD_{t, Shifts}) \]

**Disposable Personal Income**
\[ YD_t = Y_t - PerTax_t \]

**Personal Income**
\[ Y_t = CPay_t + MPay_t + OLY_t + PropY_t + DIR_t + Tran_t - SSC_t + ResAdj_t \]

**Earned Income**
\[ OLY_t = f(cpay_t/Payust_t, SEDW, Shifts) \]
\[ PropY_t = f(cpay_t/Payust_t) \]

**Social Security, Residence Adjustment**
\[ SSC_t = f(CPay_t, Shifts) \]
\[ ResAdj_t = f(CPay_t, Shifts) \]

**Civilian Payrolls**
\[ CPay_t = f(WEAdj_t, Payust_t, L_t) \]

**Wages Adjusted by Employment Mix**
\[ WEAdj_t = QWandS_t * EMktInd_t \]

**Wage and Salary Output**
\[ QWandSt = \sum_{i=1}^{50} Q_{lt} \]

**Gross Regional Product**
\[ R_{GRP_t} = f(QWandS_t, Shifts) \]

**Industry Output**
\[ Q_{lt} = Emp_{lt} * LabProd_{lt} \]

**Labor Productivity**
\[ LabProd_{lt} = f(LabProd_{ust_l, Shifts}) \]

**US Labor Productivity by DEFM Sector**
\[ LabProd_{ust_l} \]
Source: Moody’s

**Derive SD Labor Productivity**
\[ LabProd_{lt} = \frac{Q_{lt}}{Emp_{lt}} \]

**SD Output by DEFM Sector**
\[ Q_{lt} \]

**SD Employment**
Source: Moody’s

**Source Data**
SD Output \[ Q_{ltNAICS} \]
SD Employment \[ Emp_{ltNAICS} \]
**Data Integrity: 7-Point Plan**

### Taxable Retail Sales

\[ TR_{ret}S_t = f(YD_{t}, Shifts) \]

- Gross Regional Product
  \[ R_{GRP_t} = f(QWandS_t, Shifts) \]

- Personal Income
  \[ Y_t = CPay_t + MPay_t + OLY_t + PropY_t + DIR_t + Tran_t - SSC_t + ResAdj_t \]

- Earned Income
  \[ OLY_t = f(CPay_t, SEDW, Shifts) \]

- Wages Adjusted by Employment Mix
  \[ WEAd_{t} = QWandS_t * EMktInd_t \]

- Wage and Salary Output
  \[ QWandS_t = \sum_{i=1}^{50} Q_{it} \]

- Industry Output
  \[ Q_{it} = Emp_{it} * LabProd_{it} \]

- Labor Productivity
  \[ LabProd_{it} = f(LabProd_{USit}, Shifts) \]

- US Labor Productivity by DEFM Sector
  \[ LabProd_{USit} \]

- Source Data
  \[ SD Output Q_{itNAICS} \]
  \[ SD Employment Emp_{itNAICS} \]

- SD Output by DEFM Sector
  \[ Q_{it} \]

- SD Output by DEFM Sector
  \[ Emp_{it} \]

- Source Data
  \[ Source: Moody's \]
  \[ Source: CA EDD \]

**SOURCE:** SANDAG
Data Integrity: 7-Point Plan

SD Output by DEFM Sector $Q_{it}$
SD Output by DEFM Sector $Emp_{it}$

Source Data
SD Output $Q_{itNAICS}$
Source: Moody’s
SD Employment $Emp_{itNAICS}$
Source: CA EDD

50 DEFM economic sectors

391 Moody’s economic sectors
Data Integrity: 7-Point Plan

2) Conduct Dependency Analysis

- **OBJECTIVE**
  Identify key SANDAG reports and deliverables that used suspect data, evaluate significance, and assess effects on findings and policy recommendations

- **ACTION**
  - Identify work products that used erroneous data
  - Assess impact in terms of significance to the work product
  - Ascertain if any material changes in policy or decisions would have been impacted

- **RESULT**
  Mitigation plan for impacted products
Data Integrity: 7-Point Plan

- Dependency Analysis
  1. Identify Products
  2. Ascertain
     • Severity
     • Impact
     • Level of Effort to Fix

<table>
<thead>
<tr>
<th>Product</th>
<th>Detail</th>
<th>Severity</th>
<th>Comment</th>
<th>Level of Effort to Fix</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>San Diego Forward</strong></td>
<td>Expected revenues used to plan projects. ABM modeling used to order projects <em>(also see Appendix M)</em></td>
<td>Medium</td>
<td>Available TransNet revenues could impact projects.</td>
<td>Moderate - would need to re-estimate revenues and project plans</td>
</tr>
</tbody>
</table>
Data Integrity: 7-Point Plan

3) Map Modeling Process Flow

- **OBJECTIVE**
  Map data flow from source through databases, models, and outputs to provide transparency and identify areas for improved quality assurance processes

- **ACTION**
  Document and diagram all interactions

- **RESULT**
  Blueprint of current process flow to be used as the foundation for improving communication, processes, product quality, and transparency
Data Integrity: 7-Point Plan

DATA FLOW

- QAQC
  - SQL database
    - census
    - data_cafe
    - estimates
    - SPACECORE (Landcore)
    - Land Information System (LIS)
    - regional forecast
    - socioec_data

MODEL FLOW

- DEMOGRAPHIC MODEL
- ECONOMIC MODEL
- LAND USE MODEL

TRAVERSE DEMAND MODEL
Data Integrity: 7-Point Plan

4) Improve Data Governance

• OBJECTIVE
  Implement a data warehouse and management system to ensure availability, usability, integrity, and security of the SANDAG data assets

• ACTION
  • Identify customer-supplier relationships
  • Define owners/custodians of data assets
  • Build a centralized data warehouse
  • Formalize data QA, storage, archiving, and back-up procedures
  • Develop escalation procedures to allow visibility into errors or problems

• RESULT
  Industry standard, best-in-class data governance
Data Integrity: 7-Point Plan

5) Improve Review and Oversight

- **OBJECTIVE**
  Validate SR14 population, housing, and economic forecasting model

- **ACTION**
  Convene a panel of independent experts in economics, demographics, and land use to review the methods, data sources, and assumptions

- **RESULT**
  Independent and objective assessment of the suitability of SR14 forecasting model for regional planning purposes
Data Integrity: 7-Point Plan

6) Enhance Transparency

- **OBJECTIVE**
  Develop a set of agency methods and standards to ensure data and analytic transparency

- **ACTION**
  Develop check points where disclosure of analysis are provided to ensure that others can see how models were developed, how data was processed, and what assumptions were made

- **RESULT**
  Provide clarity to the Board of Directors, ITOC, and the public regarding data and modeling products
TRANSPARENCY EXAMPLE:
TransNet Revenue Forecasting (2002)
TRANSPARENCY EXAMPLE:
*TransNet* Revenue Forecasting

Transparency Example: *TransNet* Revenue Forecasting

Extrapolated Data

Annual Collections (in 2002$)

- 2002 Forecast ($14.0 B)
TRANSPARENCY EXAMPLE:
TransNet Revenue Forecasting

Extrapolated Data

$14B
TRANSPARENCY EXAMPLE:
TransNet Revenue Forecasting

Extrapolated Data

$14B
TRANSPARENCY EXAMPLE:
TransNet Revenue Forecasting

Extrapolated Data

Actual Collections ($3B in 2002$)

Shortfall ($450M$)

$450M$

$14B$

Annual Collections (in 2002$)
TRANSPARENCY EXAMPLE:
*TransNet* Revenue Forecasting

Extrapolated Data

Annual Collections (in 2002$)

- Actual
- 2002 Forecast ($14.0 B)
- Adjusted 2002 Forecast ($10.8 B)
TRANSPARENCY EXAMPLE:
TransNet Revenue Forecasting

FOR ILLUSTRATIVE PURPOSE ONLY

Annual Collections (in 2002$)

2002: Actual
2003: 2002 Forecast ($14.0 B)
2004: Adjusted 2002 Forecast ($10.8 B)
2005: Current Consensus ($9.6 B)
2006: Moody’s ($9.2 B)
2007: Woods & Poole ($10.1 B)
2008: IHS ($10.0 B)
Data Integrity: 7-Point Plan

7) Develop and Formalize Process

- **OBJECTIVE**
  Improve alignment of resources on SANDAG work program priorities and formalize process to avoid potential errors

- **ACTION**
  - Assess current work assignments and skillset alignment
  - Evaluate current modeling and data procedures
  - Implement a plan guided by industry best practices for:
    - data structures and quality
    - database design and development
    - database governance

- **RESULT**
  Implement processes to minimize single points of failure and move toward a more process-driven approach
Data Integrity: 7-Point Plan

- **Proposed Data and Modeling Work Plan**

1. Conduct Detailed Review
2. Conduct Dependency Analysis
3. Map Modeling Process Flow
4. Improve Data Governance
5. Improve Review and Oversight
6. Enhance Transparency
7. Develop and Formalize Processes
Household Income Updates

High Income Households

Percent of Total Households

Year

2010 2015 2020 2025 2030 2035 2040 2045 2050

Version 13.3.0
Version 13.3.2
Household Income Updates

Medium Income Households

- Version 13.3.0
- Version 13.3.2

Percent of Total Households

Year

2010 2015 2020 2025 2030 2035 2040 2045 2050
Household Income Updates

Low Income Households

- Version 13.3.0
- Version 13.3.2

Percent of Total Households

Year

2010 2015 2020 2025 2030 2035 2040 2045 2050

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Mode Share Comparisons

Drive Alone Mode Share

- Version 13.3.0
- Version 13.3.2
Mode Share Comparisons

Transit Mode Share

Version 13.3.0
Version 13.3.2
Data Integrity: Lifecycle Policy

- The SANDAG Service Bureau is a fee-based operation that provides customized informational and technical services to the public and private sectors.

- The Executive Committee is the Service Bureau’s governing body.

- Transportation Modeling services comprise the vast majority of Service Bureau work.
Data Integrity: Lifecycle Policy

- **Long Term Efforts**
  - **Public Sector**
    - General and Community Plan Updates
      - Recommended to be on a 10-year cycle
      - Practice is dictated by budgets, staff and public support
      - Environmental Impact Report (EIR)
  - **Private Sector**
    - Large Scale Developments
      - Cannot break ground fast enough
      - Delayed when proposed projects require a General Plan amendment
      - Environmental Impact Report (EIR)
Data Integrity: Lifecycle Policy

- Long Term Efforts
  - SANDAG
    • Mandated to produce Regional Transportation Plans by FHWA to be on 4-year cycles
      - Growth Forecasts are a primary input into the transportation model and are developed concurrently
  - Model Development
    • Series 12  Traditional 4-Step Travel Demand Model
    • Series 13  Activity Based Model
  • The current travel demand model is continuously being updated with fresh data, new procedures as well as fixing errors
### Data Integrity: Lifecycle Policy

#### Linking Growth Forecasts with RTP’s

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### Data Integrity: Lifecycle Policy

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- **City of San Diego Otay Mesa CPU**
  - Initiated 2005
  - Adopted 2014
Data Integrity: Lifecycle Policy

- **Need for Policy**
  - A Transportation Demand Model Lifecycle Policy would provide a clear roadmap for supporting old models and old planning assumptions for current and future Service Bureau project work
    - Model input data becomes stale
    - Balancing act: Client’s Needs Vs. Demand for Staff

- **Executive Committee 5/12/17**
  - Staff presented the decision makers with three options
    1. Limit support to only the most current model
    2. Support the current and previous model only
    3. Support models indefinitely
Data Integrity: Lifecycle Policy

- Executive Committee 5/12/17

1. Limit support to only the most current model
   - Would overly burden Service Bureau clientele

2. Support the current and previous model only
   - The option recommended by staff

3. Support models indefinitely
   - Challenges to maintaining obsolete software

- After much deliberation, the Executive Committee unanimously chose Option 2

  - Expiration date tied to Board adoption of RTPs
    - Ongoing projects can continue to use the previous model
    - New projects use the current model
### New Policy

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Data Integrity: Lifecycle Policy

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**Data Integrity: Lifecycle Policy**

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Data Integrity: Lifecycle Policy

- Policy immediately implemented by staff

- Board of Directors to amend Board Policy No. 012: SANDAG Service Bureau December 2017

- Disclaimers
  - Two handouts containing model disclaimers are available
    - Series 12
    - Series 13
Open Discussion
Forum Agenda Recap

- 2016 Travel Behavior Survey
- ABM Calibration Report
- Data Integrity

Next Transportation Modeling Forum:
December 13, 2017
Transportation Modeling Forum

June 14, 2017