Refreshing the Status Quo:
Federal highway programs and funding distribution

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In FY 2019, the Federal Highway Administration gave $45.1 billion in “formula-based” highway aid to states ($42.4 billion from the Highway Trust Fund and an additional $2.7 billion from general revenues).

This “formula” was entirely based on political deals and earmarks made by Congress in 2005, some real-world factors like VMT, population, bridge conditions, and air quality as of 2007, and how much gasoline and diesel fuel is purchased in Texas.

Nothing that has happened in the real world since 2007 outside of Texas has any bearing on highway funding distribution today.

Can we do better?
In the beginning, there were highway formulas

1916 Act
Formula was state shares of total U.S.: population (1/3), land area (1/3), postal route-miles (1/3).

1944 Act
New formulas for rural secondary roads and population-based formula for urban roads.

1956 Act
Interstate Construction – based solely on each state’s estimated cost to complete the roads on the agreed-to Interstate map.

1970s-1990s
New formulas and programs for bridges (cost-to-upgrade), different types of roads by system (lane-miles, VMT, fuel use) safety (lane-miles, fatality rates), air quality (population of non-attainment areas).
Political formula tweaks began in 1982.

1982 - 85% minimum rate-of-return for donor states.

1991 - 85% minimum rate-of-return raised to 90%, plus $3 billion “donor state bonus,” plus guaranteed minimum shares of total funding for donee states.

1998 - all donor/donee adjustments consolidated into one Minimum Guarantee program with 90.5% minimum rate-of-return and guaranteed shares for donee states.

2005 - Minimum Guarantee renamed Equity Bonus with 90.5% minimum rate-of-return rising to 92.0% and with donee states guaranteed either a minimum percentage share or a minimum annual dollar amount.
Formula “Equity ADJUSTMENTS” replaced Interstate construction spending

Percentages of Total Formula Highway Contract Authority Apportioned to States, FY 1982-2009

Interstate Construction
Equity Adjustments
FY 2009 – the last year with factor-based formulas

FY 2009 Highway Contract Authority Distributed to States (Million $$)

- **Earmarks**, $4,451, 11%
- **Equity Bonus**, $9,592, 24%
- **Factor-Based Formula**, $26,203, 65%
Under the FAST Act, each state receives a percentage of annual highway formula funding through FY 2020 equal to:

- The state’s percentage share of total FY 2009 funding distributed to states (factor-based formula, plus Equity Bonus, plus all earmarks)...
- As adjusted by Texas’s upwards 95% Highway Account tax payment adjustment in FY 2014 under MAP-21, and...
- As adjusted by any necessary 95% Highway Account tax payment adjustment for a FAST Act year (e.g. FY 2020 formula adjustments will be based on FY 2018 actual Highway Account tax payments).

Nothing else matters.

How states receive funding today
The 2012 MAP-21 law created a new system national highway performance goals in areas like safety, asset condition, congestion reduction, freight movement, system reliability and environmental sustainability.

It also created a set of state-by-state highway performance metrics and targets.

“Performance management will transform the Federal-aid highway program and provide a means to the most efficient investment of Federal transportation funds by refocusing on national transportation goals, increasing the accountability and transparency of the Federal-aid highway program, and improving project decisionmaking through performance-based planning and programming. “ (MAP-21, at 23 U.S.C. §150)
MAP-21 highway performance goals and metrics currently have zero connection to federal highway funding distribution.

Changes in real-world population, VMT, road/bridge conditions, air quality, safety rates, etc. since calendar year 2007 currently have zero connection to federal highway funding distribution.

Nothing that has happened in the real world since 2007 (except Texans buying gasoline and diesel) currently affects federal highway funding distribution.

Can we do better?

No more connection between the real world and highway formulas
Designing and Testing 8 Scenarios

Reviewed and used lessons from 10 other federal and state programs that distribute funding

Evaluates only the formula funds of the HTF Highway Account

Used the FY2018 programs and distribution of $41.4 billion as baseline

Calculated minimum apportionment, maximum changes

First scenario is a reprise of the original 1916 highway apportionment, the next five employ FAST programs, the seventh introduces possible new program goals, and the eighth creates new FHWA programs.

Not exhaustive, not intended to recommend a certain scenario
Scenario 1: take the time machine back to 1916

- The original formula from the 1916 Good Roads Act:
  - 1/3 state population;
  - 1/3 lane-miles (postal route miles in the 1916 Act; NHS lane-miles in this scenario to reflect evolution of the compelling federal interest; and
  - 1/3 state area (using the special rule for Alaska from its admission to the program in 1958 where it only counts 1/3 of its area towards the formula).
- No cap on percentage change versus current apportionments.
Scenario 1: Take the Time Machine Back to 1916
Scenario 2: SAFETEA-LU FORMULAS WITH CURRENT PROGRAMS

- Uses the SAFETEA-LU apportionment formulas for STP/STBGP, HSIP, CMAP and MP; merges the IM and NHS formulas under SAFETEA-LU into a hybrid formula for the current NHPP and NHFP programs.
- No donor/done equity adjustments.
- State minimum apportionment for each program of 0.5 percent.
- To limit volatility, no state’s apportionment dollars can increase or decrease by more than 10 percent versus the prior year.
Scenario 2: SAFETEA-LU FORMULAS (NO EQUITY) WITH CURRENT PROGRAMS
SCENARIO 3: NEEDS-BASED FORMULAS

- Maintain current FAST Act program structure but use different apportionment factors based to direct more funding to states with the greatest demonstrated needs.

- Added factors include a congestion index for CMAQ, pavement condition and bridge deficiency for NHPP/NFPP, and GDP and job accessibility factors for STBGP.

- Transferability between programs limited to 50% between NHPP/NHFP and STBGP.

- No donor/done equity adjustments.

- State minimum apportionment for each program of 0.5 percent.

- To limit volatility, no state’s apportionment dollars can increase by more than 12.5 percent or decrease by more than 10 percent versus the prior year.
SCENARIO 3: NEEDS-BASED FORMULAS
Scenario 4: Incentive-based Factors

• Maintains current FAST Act program structure but predicates funding to states entirely on their improvement on the objective performance measures created by MAP-21.

• Any state with zero improvement gets the 0.5 percent minimum apportionment for that program.

• No donor/donee state equity adjustments.

• To limit volatility, no state’s apportionment dollars can increase by more than 15 percent or decrease by more than 10 percent versus the prior year.
Scenario 4: Incentive-based Factors
Scenario 5: mix of needs-based and incentive-based factors

- Uses current FAST Act program structure and uses primarily needs-based factors from Scenario 3, mixed with some performance-based factors from Scenario 4.
- No donor/donee equity adjustments.
- State minimum apportionment for each program of 0.5 percent.
- To limit volatility, no state’s apportionment dollars can increase by more than 20 percent or decrease by more than 10 percent versus the prior year.
Scenario 5: mix of needs-based and incentive-based factors
Scenario 6: needs-based factors with incentive set-asides

- Uses current FAST Act program structure and uses the Scenario 3 needs-based formula factors except that 2 percent of each program is set aside for states that show improvement in the Scenario 3 factors based on the MAP-21 performance measures.
- No donor/donee equity adjustments.
- State minimum apportionment for each program of 0.5 percent.
- To limit volatility, no state’s apportionment dollars can increase by more than 10 percent or decrease by more than 10 percent versus the prior year.
Scenario 6: needs-based factors with incentive set-asides
Scenario 7: align fast programs around national goals

• Modify current FAST Act programs and base them around five of the national performance goals in 23 U.S.C. §150, with some modifications.

<table>
<thead>
<tr>
<th>Goal Area</th>
<th>National Goal</th>
<th>Perf. Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Fatality/injury reduction</td>
<td>Fatalities, injuries &amp; crashes in # and % of VMT on public roads</td>
</tr>
<tr>
<td>System Preservation</td>
<td>Preserve system in state of good repair</td>
<td>Avg. asset life cycle condition per daily NHS traffic</td>
</tr>
<tr>
<td>System Reliability</td>
<td>Improve system reliability</td>
<td>Additional trip time due to road unreliability</td>
</tr>
<tr>
<td>Freight Movement/Economic Vitality</td>
<td>Strengthen freight network and access</td>
<td>Delays on National Freight Network</td>
</tr>
<tr>
<td>Enviro./Energy Sustainability</td>
<td>Enhance system performance while protecting/enhancing environment</td>
<td>On-road mobile source emissions; total gas/diesel consumption</td>
</tr>
</tbody>
</table>
Scenario 7: Align FAST Programs Around National Goals

- Uses both performance-based and needs-based factors.
- 2% of each program is reserved for a "bonus pot."
- No donor/donee equity adjustments.
- State minimum apportionment for each program of 0.5 percent.
- To limit volatility, no state’s apportionment dollars can increase by more than 12.5 percent or decrease by more than 17.5 percent versus the prior year.
Scenario 7: Align FAST Programs Around National Goals
SCENARIO 8: ENTIRELY NEW PROGRAM STRUCTURE

• Completely jettisons the FAST Act program structure in favor of new programs:
  • Highway Maintenance Improvement Program – combines NHPP and STBG, gets 67.8% of total funding under this scenario, formula-based, gives guaranteed base level funding for states.
  • Environmental Impact Program – replaces CMAQ at current levels, expands goals to include GHG reduction, formula-based.
  • Metropolitan Planning Program – same as current.
  • Freight Improvement Program – discretionary (not formula), $3 billion per year.
  • Metropolitan Accessibility Program – discretionary (not formula), focused on transformational investments for regional accessibility.
  • Technology Pool – $500 million per year discretionary program for transportation technology advancement.
SCENARIO 8: ENTIRELY NEW PROGRAM STRUCTURE

- HMIP uses entirely needs-based factors while TSIP, EIP and MPP are a blend of needs-based and performance-based factors.
- 2% of each program is reserved for a "bonus pot."
- No donor/donee equity adjustments.
- State minimum apportionment for each program of 0.5 percent.
- To limit volatility, no state’s apportionment dollars can increase or decrease by more than 25 percent versus the prior year.
SCENARIO 8: ENTIRELY NEW PROGRAM STRUCTURE
Concluding Thoughts

- Any real change to the formula factors will need better data
- Political difficulties will challenge any change to the programs or formulas
- Substantial new funding will likely be necessary to enable change
Questions?

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