How do we move from research to implementation?
The Contra Costa Transportation Authority (CCTA) is a public agency formed by Contra Costa voters in 1988 to manage the county’s transportation sales tax program and to lead the county’s transportation planning efforts.

CCTA is responsible for maintaining and improving the county’s transportation system by planning, funding, and delivering critical transportation infrastructure projects and programs that connect our communities, foster a strong economy, increase sustainability, and safely and efficiently get people where they need to go.
WHAT WE DO

- **BUSES** Invest in a reliable, comfortable and convenient bus network

- **LOCAL STREETS** Smooth traffic flow on major roads and invest in neighborhood improvements such as repairing potholes and road surfaces

- **PEDESTRIAN** Make improvements to sidewalks, crosswalks, trails, and paths

- **SAFE ROUTES TO SCHOOLS** Focus on programs and projects aimed at bicycle and pedestrian safety for K-12 students

- **FERRIES** Expand the Bay Area ferry system by looking to ferries as an alternate commute method between West County and San Francisco

- **BICYCLE** Invest in safe routes and infrastructure improvements for bicyclists

- **BART** Make improvements to BART service and stations, such as extensions to new routes and parking at stations

- **HIGHWAYS** Complete Contra Costa’s highway system, and improve air quality and noise protection along these corridors

- **CARPOOL/RIDESHARE** Implement programs aimed at reducing traffic congestion by encouraging carpooling and ridesharing

- **PROGRAMS FOR SENIORS AND PEOPLE WITH DISABILITIES** Enhance transit options to improve mobility for seniors and people with disabilities
National Freight Advisory Committee
WHO WE ARE

- MAP-21 (2012) mandated creation of National Freight Strategic Plan
- NFAC Established April 2013
  - 46 Members public/private sectors
    - State DOT Secretaries
    - Elected Officials
    - Freight Mode representatives
    - Shippers
    - Researchers
    - Safety, Labor & Environmental Advocates
- First meeting June 2013 to address primary task- recommendations for first National Freight Strategic Plan
STATUS

• **Six Subcommittees**
  - Conditions, Performance, and Data
  - Safety, Security, and Environment
  - Project Delivery and Operations
  - Research, Innovation, and Technology
  - International Freight Strategies and Operations
  - First and Last Mile

• **Added two areas for additional work**
  - Multijurisdictional Freight Planning
  - Workforce Development
STATUS

• June 2014 81 recommendations submitted to USDOT Secretary

• Assessment of statutory, regulatory, technological, institutional, financial, and other barriers to improved freight transportation performance

• Best practices to improve the performance of the national freight network.

• Best practices to mitigate the impacts of freight movement on communities.
Cantwell Freight Provisions Pass U.S. Senate in Sorely-Needed Surface Transportation Legislation

Senate transportation bill also incorporates Cantwell crude-by-rail safety measures, continues federal support for ferries and transit

WASHINGTON, D.C. — Today, the U.S. Senate passed a long-term transportation bill, the DRIVE Act, which includes multiple freight and rail safety provisions championed by U.S. Senator Maria Cantwell (D-Wa). And for the first time, the bill contains a separate Freight Division that is explicitly focused on goods movement. That section, significant parts of which are based on Cantwell’s National Multimodal Freight Policy and Investment Act ($1.650), includes America’s first-ever national multimodal freight policy, new strategic freight planning, and a program to specifically invest in multimodal freight and port projects. The bill also includes crude-by-rail safety measures that establish enhanced first responder information access, require railroads to develop comprehensive oil spill response plans, and take an incremental step towards regulating the volatility of crude oil being transported by train.

“U.S. growers and manufacturers must be able to efficiently ship their goods to consumers outside our borders, where 95 percent of the world’s consumers live. Around the world, countries are investing in freight infrastructure to stay competitive in a global economy. But here at home, we face the economic consequences of an outdated, crumbling transportation network,” said Cantwell. “I fought to include multimodal freight planning and investment provisions in this bill, which reflects a growing consensus both in Washington state and in Congress that we can’t afford to neglect freight any longer.”

The National Multimodal Freight Policy and Investment Act ($1.650), introduced last month by Senators Cantwell, Booker, Murray, and Markey, sought to create a comprehensive, strategic plan for multimodal freight and included a grant program to target investment in our nation’s network of highways, railroads, ports, and intermodal facilities. The DRIVE Act that passed the Senate on Thursday, July 30, adopts this approach to multimodal freight policy and investment, by including a dedicated Freight Division that establishes a National Multimodal Freight Policy, requires the Secretary of Transportation to designate a National Multimodal Freight Network, and requires the development of a National Freight Strategic Plan. The bill also creates a new Freight Investment Grant Program to provide competitive grants to projects specifically focused on improving freight mobility. That program is authorized for $200 million annually over six years. The Cantwell freight bill, and the provisions included in the DRIVE Act, are largely based on recommendations from the National Freight Advisory Committee, a group that Senator Cantwell worked to establish with then-Transportation Secretary Ray LaHood.

In addition to strong freight provisions, the DRIVE Act also includes critical safety measures that were outlined in the Cantwell-authored Crude-by-Rail Safety Act. Introduced earlier this year, the DRIVE Act requires a report to Congress on the findings of a joint U.S. Department of Transportation/U.S. Department of Energy study on crude oil volatility. It would also require railroads to improve the information available to first responders in real-time, while ensuring that State Emergency Response Commissions can continue to receive crude-by-rail movement information they currently rely on now. In addition, the Department of Transportation would require railroads to develop comprehensive oil spill response plans, and conduct a study into the ability of railroads to pay for cleanup of large-scale incidents.

Additionally, the DRIVE Act creates new funding for grade separation and short-line rail projects that are critical to community economic development and safety, increases federal investment in ferry systems — critical to Washington’s transportation network, maintains a federal commitment to public transportation, and invests in and increases state-supported route transparency of Amtrak.

The Cantwell freight bill, and the provisions included in the DRIVE Act, are largely based on recommendations from the National Freight Advisory Committee, a group that Senator Cantwell worked to establish with then-Transportation Secretary Ray LaHood.
NFAC RECOMMENDATIONS AFFECT LEGISLATION

Subcommittee on Research and Technology
U.S. House Committee on Science, Space, and Technology

• Evaluation of Freight Research Needs based on NFAC recommendations including:

  • Potentially reviving National Cooperative Freight Research Program to reflect current research needs
  • The effect of changing patterns of freight movement on transportation planning decisions relating to rest areas and implementation of truck parking solutions
  • New innovative technologies and tools for data collection, modeling, and routing
  • Ways to advance deployment of freight intelligent transportation systems, including advanced information systems.
  • Methods for developing the outreach tools and incentives to increase the workforce.
National Freight Strategic Plan scheduled to be released Fall 2015

- Discussion of six major forces affecting freight transportation

- Strategies to address bottlenecks
  - Infrastructure Bottlenecks
    - Congestion, connectivity
  - Institutional Bottlenecks
    - Multijurisdictional planning, better data
  - Financial Bottlenecks
    - Consistent underinvestment in network
Infrastructure bottlenecks
Infrastructure bottlenecks

**Freight Movement is Multimodal**

Every mode of transportation moves freight, but trucking is the primary mode of freight travel.

<table>
<thead>
<tr>
<th>Mode</th>
<th>2012</th>
<th>2040</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck</td>
<td>13.2 billion</td>
<td>18.8 billion</td>
<td>+43%</td>
</tr>
<tr>
<td>Rail</td>
<td>2.0 billion</td>
<td>2.8 billion</td>
<td>+37%</td>
</tr>
<tr>
<td>Waterborne</td>
<td>975 million</td>
<td>1.1 billion</td>
<td>+10%</td>
</tr>
<tr>
<td>Air</td>
<td>15 million</td>
<td>53 million</td>
<td>+250%</td>
</tr>
</tbody>
</table>

54 million tons of freight move across our nation every day.
Institutional bottlenecks
Financial Bottlenecks
NFAC RECOMMENDATIONS
GROW AMERICA ACT

- Multimodal Freight Investment Program
- State Freight Plans – Secretary (State) approval
- Freight Advisory Committee
- Workforce Development
- 21st Century Infrastructure Investments
  - TIGER Trans Investments Generating Econ Recovery
  - FAST – Fixing and Accelerating Surface Transportation
- Title V
- Establish an Innovative Technology Program
- National Cooperative Freight Research Program – no funding identified
- ITS Goals and Purposes – adds ITS Freight Research, Demos, and Appl’s focus to the ITS Program Goals
- Automated Vehicle emphasis to the program goals
A little bit of history
Futurama

1964 World’s Fair Futurama

1939 World’s Fair Futurama

I HAVE SEEN THE FUTURE

TOMORROW-LAND

High spot of the New York World’s Fair reopening this Spring—GM Futurama!
You can look over GM’s exciting “idea” cars—Firebird IV with television, stereo, game table, refrigerator; GM-X with jet aircraft cockpit and controls—fascinating design and engineering innovations right out of tomorrow.
2007 DARPA Urban Challenge

‘Boss’ CMU Tartan Racing, 60 miles urban, 4h:10m
2008 Levandowski’s Pribot

Delivered pizza across SF Bay bridge
2010 Audi ‘Pikes Peak’

12 mile hill climb, 156 turns, 27min (cf 11m48s)
2014 Google ‘mastering city street driving’

700k miles, cyclists signals, construction zones
Speed of Innovation
International Business Machines Corporation (IBM) 🌟 Watchlist

157.81  -2.96 (-1.84%) NYSE - As of 4:02PM EDT

After Hours: 157.81 ↑+0.49 (0.31%) 05:51pm EDT

Open  159.60
Close  157.81
Low   157.81
High  160.23
Vol   4.6M
% Chg N/A

30 YEARS
How cities have evolved
City 2.0
City 5.0

Data Driven Mobility

Intermodal Innovations

Sensible & Digital City
A glimpse into the future
Platooning: Worldwide Activity

**SARTRE** – EU (Sweden) 2009-Present

**ENERGY ITS** – Japan 2009-12

**KONVOI** – Germany 2005-09

**PIT** – Canada 2009

**Underway/Upcoming**
Netherlands, Sweden
EU/Spain
UK and others

**PATH** – US ‘90s and ongoing
Connectivity Emerging Faster

Third Largest Mobile Device

Source: http://www.internetlivestats.com/internet-users/#trend
Who We Are

Drones
Introducing the GoMentum Station Program

Connected Vehicle and Autonomous Vehicle (CV/AV) Program and Test Facility
More than 5,000 acres with 2,100 acres currently available for testing
Overarching Goals

21st Century Transportation

- Economic Growth & Job Creation
- Efficient Mobility
- Enhanced Safety
- Healthier Environment
US Freight Trucking: $700 Billion

Enhance Fleet Economics & Safety

Accident Cost: $90+ Billion
Fuel Cost: $100+ Billion
Net Profit: 3%

Prevent Accidents
Save Fuel
Improve Decisions

Enhance Fleet Economics & Safety
Within Fleets
Trucks travelling in groups today
Engaged w/ 18 Fleets for Pilots

Between Fleets
Peloton as intermediary
Fleets willing to link with competitors

Hardware Install Roadmap

Pre-Delivery
Pre-Wiring
OEM Option

Partnerships

Truck OEMs + Braking System Suppliers + Fleets
Federal (USDOT: NHTSA, FMCSA)
- No federal limitations to platooning
- Two USDOT projects + more coming = encouraging progress

States (State DOTs)
- No numeric following distance limitation in majority of States: “reasonable and prudent” standard
- Working with growing number of States to hold trials via administrative approval or legislation

Funded Projects with:
• More than 15,000 Miles platooned
• Independent fuel economy tests by NACFE and US Dept of Energy
• Demos with Nevada and Michigan Govt support
• Demos w/ Bendix & Meritor Wabco
• USDOT (FHWA, FMCSA, NHTSA) project
  • with Peterbilt, Auburn University, Meritor Wabco, American Trucking Association
• USDOT project with Caltrans, PATH, Volvo
Industry Standards & Best Practices: ATA/TMC, SAE, etc

AASHTO and CVSA: dialogue, best practices, harmonization

Collaboration on Demonstrations
- UT (Nov’13), NV (May’14), MI (Sept’14), FL (private test) (Apr’15)

Setting stage for Fleet Trials in 2016
- Administrative approval: TX, NV, MI, AL, NM
- Legislation passed or in process: UT (passed), CA, FL
- High interest & discussions: MO, IA, AZ, WI, AR, TN, and others
Connected Trucks: Safety + Efficiency

Advanced Vehicle Control

V2V Communication & Sensors

On-Board Safety Systems
Thank you!

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