<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
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<tbody>
<tr>
<td>Curtis Morgan</td>
<td><a href="mailto:c-morgan@tti.tamu.edu">c-morgan@tti.tamu.edu</a></td>
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<td>Jolanda Prozzi</td>
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<tr>
<td>Steven Polunsky</td>
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</tbody>
</table>
“Support the role of the Texas A&M Transportation Institute as an independent resource to the Texas Legislature, providing analysis of state transportation policies and the economic impact of those policies.”

-- Rider 5, p.III-228, General Appropriations Act 2016-2017
TTI at the Southwestern Rail Conference

Working with legislative leaders, TTI has identified the transportation issues in these areas which must be better understood to position the state in an optimal manner.
Things we are NOT currently researching
Things we are NOT researching (currently)

Image source: http://boingboing.net/2005/05/27/schwarzenegger-creat.html
Things we are NOT researching (currently)
Things we are NOT researching (currently)

Things we are NOT researching (currently)

Image source: http://expert-teleportation.strikingly.com/
Things we are NOT researching

PetChatz HD

see | hear | speak | sniff | treat

WiFi

simple connection
works on any Wi-Fi network

mobile app
for on-the-go connection

motion & sound detection
Receive alerts of events
in your home

Image source: http://www.petchatz.com/

With PawCall

PawCall is a video-conferencing system for pets. Most pet cams aren't very fair. You can see what your furry friend is up to, but they have to get in touch with you? PetChatz understands the four-legged pet's needs. Our four-camera already had two-way video chat and an app-controlled treat dispenser. The PawCall accessory, which lets Fido initiate the call, is just a button press away. When the button is pressed, you'll get a request on your smartphone or computer, with your pet's favorite sound— whether it be a gentle meow—or more likely one of those delicious hidden treats. The PawCall is available now for $380. The PawCall will be available in February for

petchatz.com

Image source: http://www.petchatz.com/
A Bonjour alarm clock is displayed January 4, 2016. The voice-controlled, Internet-enabled alarm clock can be programmed to wake you up under a variety of user-set conditions and can alert you if your home security system detects an intruder. The $200 clock from France should be available by Christmas season in 2016, a representative said. REUTERS/Steve Marcus
Things we are NOT researching


It Takes a Village... to Stop a Virus

With Kinsa, you can choose to join a Group.

By hooking into the health of a school or workplace group, for example, you can review general health levels, common symptoms, and any notes, questions or responses about illnesses that may be going around. This helps you know when a cough is just a cough, and when it's possible you've picked up strep.

$19.99 + free shipping

Image sources: https://kinsahealth.com/products/smart-stick
Things we are NOT researching

Transforming transportation in Texas through research, collaboration, and policy innovation.

Is a self-driving car in your future?

Study suggests Austin residents are evenly split on using self-driving cars.

Why invest public funds in private freight railroad projects?

Gas Tax Facts

A new perspective on travel demand management.

Transforming Texas through research, collaboration, and policy innovation.
What Bills Passed & Didn’t Pass

84th Regular Session Legislation

Finance

1. SJR 5 Proposing a constitutional amendment dedicating certain revenue derived from the tax imposed on the sale of motor vehicles to the state highway fund.
2. SJR 7 Proposing a constitutional amendment excepting certain appropriations for reducing state debt from the constitutional limitation on the rate of growth of appropriations.
3. SJR 12 Proposing a constitutional amendment prescribing the purposes for which revenue from motor vehicle registration fees, certain motor vehicle-related taxes, and certain revenues received from the federal government may be used.
4. SJR 15 Proposing a constitutional amendment prescribing the purposes for which revenue from motor vehicle registration fees, certain motor vehicle-related taxes, and certain revenues received from the federal government may be used.
5. SJR 19 Proposing a constitutional amendment limiting appropriations from the economic stabilization fund to a total amount that the comptroller of public accounts estimates will not result at any time in a fund balance of less than a prescribed minimum amount, other than in an emergency if certain requirements are met.
6. SJR 42 Proposing a constitutional amendment prescribing the purposes for which revenues from motor vehicle registration fees and taxes on motor fuels and lubricants may be used.
7. SJR 48 Proposing a constitutional amendment authorizing the issuance of additional obligations to provide funding for the higher education property tax relief program.
Transportation-Related Committees of the 84th Texas Legislature, Interim

**Senate Committee on Transportation**
- Sen. Robert Nichols, Chair
- Sen. Dan Hellfritz, Vice Chair

- [Home Page](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Funding](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Policy](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)

**House Committee on Transportation**
- Rep. Joe Pickett, Chair
- Rep. Amanda Martinez, Vice Chair

- [Home Page](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Funding](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Policy](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)

**Subcommittee on Long-Term Infrastructure Planning**
- Rep. Ken Simpson, Chair

- [Home Page](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Funding](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Policy](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)

**Senate Select Committee on Transportation Planning (SND 20, Sec. 3)**
- Sen. Robert Nichols, Chair

- [Home Page](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
- [Funding](https://tti.tamu.edu/policy/txtransportation-legislation/84i/)
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TTI at the Southwestern Rail Conference

Curtis Morgan
• Program Manager
  Associate Research Scientist

Jolanda Prozzi
• Program Manager
  Research Scientist
• Environment and Planning

Allan Rutter
• Division Head
  Research Scientist
• Freight Mobility Division
Recent TTI Passenger Rail Research

- TTI has maintained a passenger rail-related research program for the past 20+ years.
- Today’s presentation will cover two recent/on-going passenger rail studies:
  - Intercity Passenger Rail Service and Development Guide (NCRRP 03-01)
  - State-supported Passenger Rail Corridor Profiles for AASHTO SCORT
Intercity Passenger Rail Service and Development Guide (NCRRP 03-01)

- Research conducted for the National Academy of Science’s Transportation Research Board
- TTI is lead research agency along with several other experts
- Guidebook describes process and best practices for development of intercity passenger rail programs/service expansion
Intercity Passenger Rail Service and Development Guide (NCRRP 03-01)

• Covers project and program development from vision to operations
• Describes existing intercity passenger rail environment, regulations, and past experiences
• Based on interviews with national stakeholders (Operators, State DOTs, Implementing agencies)
• Five Targeted Syntheses covering gap areas
New Research in Gap Areas:
- Liability/Insurance Requirements for ICPR Service
- PRIIA 209 Cost Formula Transparency
- Robust ICPR Service Delivery
- ICPR Performance Measurement/Quality Assurance Techniques
- Role of the US Surface Transportation Board Regarding ICPR Service
State-supported Intercity Passenger Rail Corridor Profiles

- On-going project for the Assoc. of American State Highway and Transportation Officials (AASHTO) Standing Committee on Rail Transport (SCORT)
- Develop detailed corridor profiles of all 29 state-supported intercity passenger rail routes
- Multistage process of completion
- To be completed in Fall 2016
State-supported Intercity Passenger Rail Corridor Profiles

- Map of state-supported corridor routes
Freight Railroad Research

- Center for Railway Research
- Policy Research Center
- Freight Mobility Division work
Center for Railway Research

- Conducts research in railroad infrastructure for public and private sponsors
- Works with AAR's Transportation Technology Center in Pueblo, CO
- Member of UT RGV University Transportation Center for Railway Safety
Center for Railway Research

- Example Project: Live Load Effects of Railroads On Retaining Walls & Temporary Shoring for TxDOT
- Instrumented structural steel panel along railroad in College Station, measuring lateral movements as freight trains pass
- Information will be used to design retaining walls for rail lines along highway projects
Policy Research Center Project: Considerations for Public Freight Rail Projects in Texas

- Public Freight Rail Projects (PFRPs) differ from other highway P3s being pursued in Texas
- Texas statutes create institutions for freight railroad projects
- PFRP case studies in Texas and other states offer instruction
- Applying best practices to PFRPs in Texas
Policy Research Center Project: Considerations for Public Freight Rail Projects in Texas

- Texas should enter into a PFRP only to advance a clear public interest.
- As Texas population and economy grows, so will rail traffic, and with it congestion and community impacts.
- Texas may consider intervening through a PFRP when:
  - public interest does not match railroad business objectives,
  - railroads may be unable to reach an agreement to resolve rail congestion that affects the public,
  - railroads may not have access to capital to address public needs.
Freight Mobility Division
Railroad Research

- Research on Rural Rail Transportation Districts authorized by Texas Legislature
- Highway-rail grade crossing safety
  - Work for FHWA to support highway-rail grade crossing reports and State Action Plans
  - Help develop grade crossing traffic signal preemption guidelines
  - Host biennial National Highway-Rail Grade Crossing Safety Training Conference
Jolanda Prozzi

j-prozzi@tti.tamu.edu

Freight Trends to Watch
Freight Trends to Watch

- Global trade factors/trends
- Socio-demographic trends
- Environmental trends
- Technology trends
Global Trade Factors/Trends
Global Trade Factors/Trends

- Trans-Pacific Partnership (TPP)
- Transatlantic Trade and Investment Partnership (T-TIP)
- Normalization of trade relations with Cuba
Nearsourcing/Insourcing

Percent naming region as most attractive nearsourcing location

- U.S.: 37% (2013), 36% (2012)
- Mexico: 37% (2013), 49% (2012)
- Canada: 7% (2013), 0% (2012)
- South America: 5% (2013), 4% (2012)
- Caribbean: 5% (2013), 2% (2012)
- Central America: 5% (2013), 9% (2012)
- Other: 5% (2013), 4% (2012)

Biggest advantages expected from a nearsourcing decision
International Trade Data System implemented by December 2016

- Use single electronic platform to complete forms needed by multiple government agencies
- Streamline exporting process and reduce clearing times
Socio-Demographic Trends
Population in Texas from 1970 to 2010 and Projected to 2050

Source: Changing Texas: Implications of Addressing or Ignoring the Texas Challenge by Murdock et al. (2013)
Urban/Rural Population in Texas (1900 -2010)

Source: [http://production.sustainabilitylt.netdna-cdn.com/content/postimages/image/460/normal_whole_foods.jpg](http://production.sustainabilitylt.netdna-cdn.com/content/postimages/image/460/normal_whole_foods.jpg)
NH White and Hispanic Populations as a Percent of the Texas Population in 2000 and 2010 and Projected in 2050

Source: Changing Texas: Implications of Addressing or Ignoring the Texas Challenge by Murdock et al. (2013)
Environmental Trends
Concerns for the next 50 to 100 years:

- **Sea Level Rise** (virtually certain, 99% probability)
- **Rise in Arctic temperatures** (virtually certain, 99%)
- More very hot days with associated heat waves and fewer cold days (very likely, 90%)
- **Changes in precipitation levels and frequency** (very likely, 90%)
- **Increase in the intensity of strong hurricanes** (likely, 67% probability)
Extreme Weather Events

U.S. 2015 Billion-Dollar Weather and Climate Disasters

- Western and Alaskan Wildfires Summer-Fall 2015
- Central/Northeast Severe Weather June 21–25
- Central/Eastern Winter Storm, Cold Wave February 14–20
- South Carolina and East Coast Flooding October 1–5
- Midwest/Ohio Valley Severe Weather April 7–9
- Southern Plains Tornadoes and Oklahoma Flooding May 6–10
- Texas and Midwest Flooding December 26–29
- Texas Tornadoes and Severe Weather May 23–26
- South/Southeast Severe Weather April 18–20

This map denotes the approximate location for each of the ten billion-dollar weather and climate disasters that impacted the United States during 2016.
Impact on Infrastructure
Regulatory Response
Industry Response
Consumer Response
Technology Trends
Electronic Commerce


 Sources: iResearch, Analysys International, A.T. Kearney analysis

Note: Figures for 2010-2014 are estimates.
Is Same Day Delivery Inevitable?

Source: Reynolds 2015
3D Printing

- Create objects by adding materials (not subtracting)
- Customization of objects
- Goods will be made closer to final destination

Source: 3dprint.com
3D Printing Market Trends

Shifting from hobbyists and prototyping to parts manufacturing (Boeing, GE)

Source: Alix Partners, 2013
Big or Massive Data: Expected Impact on Supply Chain

Source: Reynolds 2015
Automated Trucks and Platoons

- Public acceptance is a concern

- Many institutional issues have to be resolved before wider use – legislation, liability, reliability