

Transportation Centers at the University of Washington and Washington State University

Mark Hallenbeck
presenting



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Pacific Northwest Transportation Center



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- The Federal Region 10 UTC
 - One of 22 UTCs currently funded by USDOT RITA
 - 10 regional
 - 12 Tier I (2 reserved for transit)
 - Currently competing for next round of funding
 - 5 national, 10 regional, and 20 tier I centers.
 - The UW is also on six other teams competing for various Tier I centers

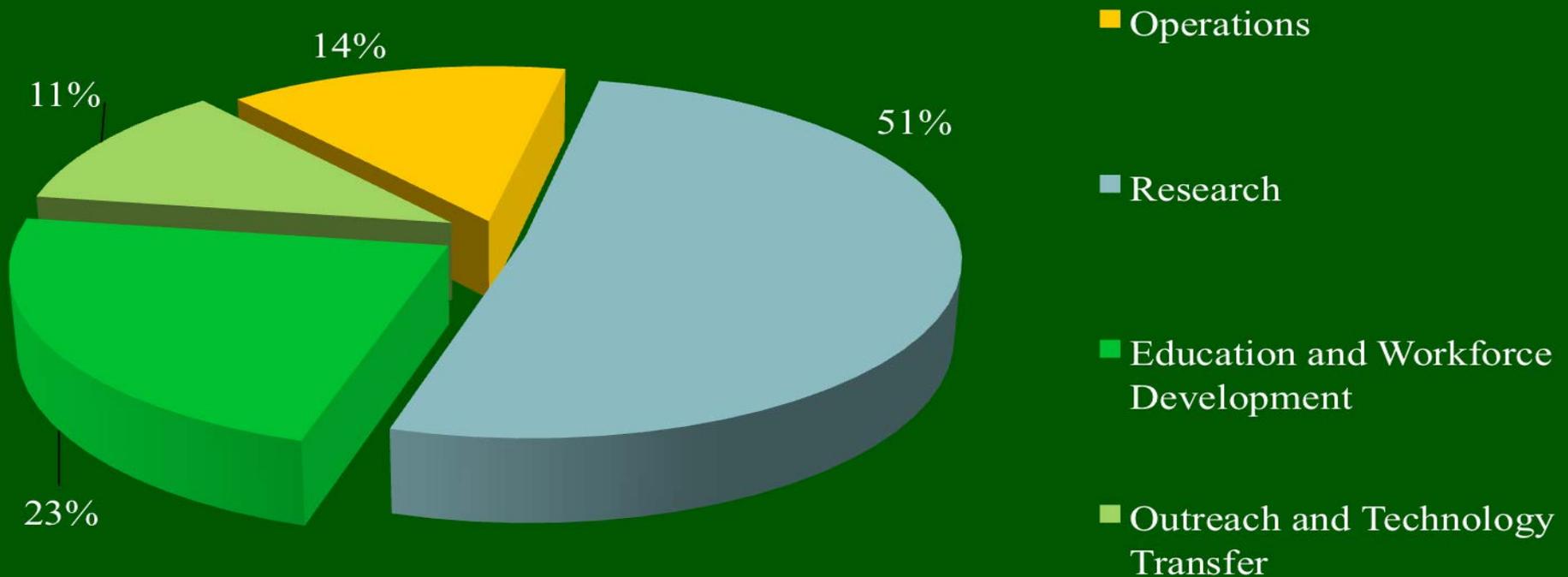


PacTrans

- Is in its second year of operation.
- Has funding from USDOT
- Serves Washington, Oregon, Alaska, Idaho
 - UW, WSU

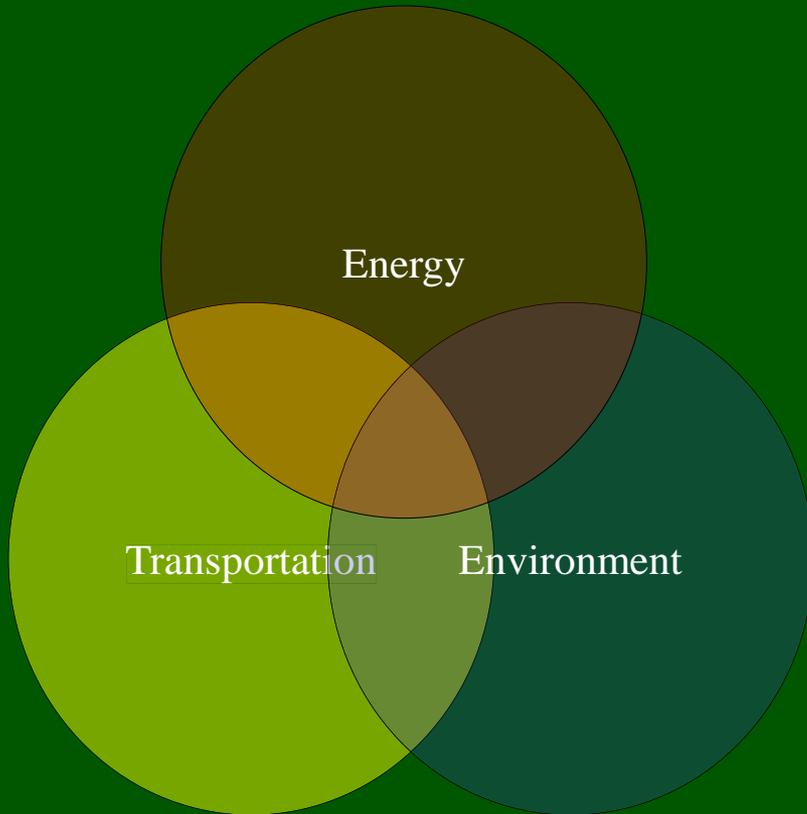
PacTrans Funding – \$3.5 million/year

Requires 50/50 Match



New funding levels are expected to be smaller ($\sim \$2.7 \text{ M} / \text{yr}^6$)

Strategic Goals



- **Promote data-driven solutions for informed decisions**
- **Develop new technologies for better sensing and monitoring**
- **Train transportation engineers with strong technology and data handling skills**

Research Activities



Research Activities

Split between larger multi-institutional projects and smaller, single institution projects

- Five multi-institutional projects / yr
 - ~\$250K of PacTrans funding + equal amount of match
 - One led by each school
- Smaller “exploratory” projects
 - Each school gets \$150K / yr (matched)
 - 3 to 5 projects per school

Research Activities

Multi-Institutional Projects

- Competitive selection
 - Multiple topic areas
- Project Selection Process
 - Match included in project selection criteria
 - External review of the proposals
 - Each school leads one project

Research Activities

Small Exploratory Investigation Projects

- Selected by individual schools
 - Process changes from school to school
 - External review of the proposals
 - Finalized work plan for each selected project

Research Activities

Year 1 projects:

- Safe Arterial Operations
- Innovative Survey Design
- Freight Project Prioritization
- Risk Assessment for Lifeline Corridors
- Proactive Risk-Based Slope Asset Management

UW/WSU Small Projects

- GPS data collection for trucks
- Bicycle route choice model development
- Truck drayage survey methodology
- Near road NO₂ Monitors
- Recycled concrete aggregate in PCCP
- Media filter drain evaluation

Educational Development

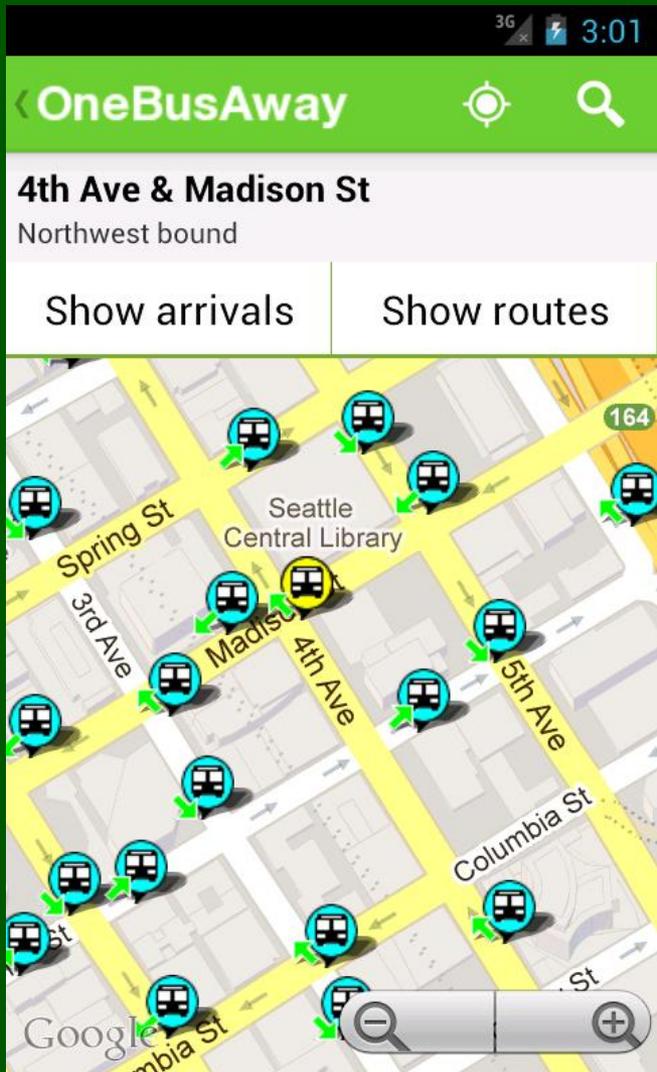
- Activities at both the Center and University levels
- Funds for courses, course development, and training programs
- Internships
- Multi-school education project – develop a web platform for sharing course curriculum

Outreach

- Multi-university outreach project: reducing driver distraction among teens
- Conferences and workshops
 - Launch summit
 - Region 10 Transportation Conference (Oct 18th)
 - Region 10 Student Conference (Oct 19th)
 - Region 10 Seminars (in person and via Webex)
 - Tech transfer and training



Technology Transfer



The screenshot shows the OneBusAway app interface with a list of bus arrivals for the "3rd Ave & Madison St" stop, Northwest bound. The list includes the bus number, route name, arrival time, and minutes from the scheduled arrival.

Bus Number	Route Name	Arrival Time	Minutes from Scheduled
358E	Aurora Village Via Aurora Ave N	2:57pm	-5
		Departed 2 minutes late	
28	Broadview Fremont	3:01pm	-1
		Departed 4 minutes late	
522E	Woodinville	3:02pm	NOW
		4 minutes early	
16	Northgate Wallingford	3:05pm	3
		Scheduled arrival	
358E	Aurora Village Via Aurora Ave N	3:10pm	8
		On time	
26	East Green Lake Fremont	3:12pm	10
		On time	
66E	Northgate Eastlake	3:19pm	17
		Scheduled arrival	
	Northgate Wallingford		

PacTrans Challenges

- Currently under re-competition
- Balance funding between existing research needs and future priority directions
- Differing interests and priorities across consortium institutions and transportation agencies
- Lack of funding in fundamental research along the strategic directions
- Balance cutting edge research and practical research

PacTrans Opportunity

- Interested industry partners can leverage their resources
- The consortium has excellent skills across a wide spectrum of topics
- We would love to work together



TRAC's Mission

Improve the connection between

- Washington State Department of Transportation (WSDOT), and
- University of Washington
- Washington State University

TRAC's Role - 1

- Assist UW, WSDOT, WSU

- obtaining,
- performing, and
- communicating

transportation research and results

TRAC's Role - 2

Smoothing the administrative process between
WSDOT and the two Universities



"Dr. Hartson can't see anyone until he's finished his paperwork."

What does TRAC do?

- Serve as a UW-WSDOT communication link
 - Identify UW personnel that can help WSDOT solve problems
 - Identify potential WSDOT sponsors for UW research
 - Smooth the interaction between UW and WSDOT

What does TRAC do?

- Perform or assist in the performance of research
 - TRAC-UW office has a small professional staff that works in the area of operations, planning, performance monitoring, and ITS
- But a large percentage of TRAC work is done by faculty and graduate students

WSDOT Subject Areas

- Anything to do with Transportation
 - Pavement design and rehabilitation
 - Bridge design, repair, and seismic retrofit
 - Environmental analysis and mitigation
 - Water
 - Air
 - Geo-synthetic materials
 - Traffic operations
 - Transit operations



WSDOT Subject Areas

- Also:
 - Urban design and planning
 - Intelligent transportation systems
 - Performance measurement, massive data systems, and data mining
 - New sensor design and testing
 - Traveler information systems (delivery mechanisms, content, user interfaces)
 - Freight mobility and security
 - Policy analysis and public affairs

WSDOT Focus

- Problem solving not basic research
- Contracts not Grants

TRAC Finances

- TRAC funding is all soft money (project specific)
 - Many small projects
 - Almost all are contracts, not grants
- WSDOT is our primary client
- We look for funding from other agencies when it is available

TRAC Projects

- Local transportation agencies
 - Seattle DOT
 - King County
 - Sound Transit
- Federal agencies / organizations
 - USDOT (FHWA, FTA, RITA)
 - Transportation Research Board Programs (NCHRP, NCFRP, SHRP)



TRAC Projects at the UW

- This is a small subset of what we do
- Emphasis on projects related to
 - Tolling
 - Planning
 - Policy

TRAC-UW and Tolling

- Not well funded
 - But lots of interest on campus
- Started with small study for King County Executive (2007)
 - Tolling the entire regional freeway system

TRAC-UW and Tolling

- Social equity issues of SR 520 tolls (Plotnick, et. al.)
- Empirical analysis of customer response to tolling on SR 167 (Brent & Gross, PhD dissertation)
- BC Regional Tolling Dialog (Hallenbeck)
- Improved HOT lane pricing algorithm (Wang)
- Violation analysis of SR 167 HOT lanes

TRAC-UW and Tolling

- Proposed, not funded
 - Impact/reaction to tolls on trucking community
 - Development and testing of auditable carpool toll tags
 - Improved modeling of toll diversion / response
 - Policy interest from the Evan's School

TRAC-UW and Planning

- Performance monitoring of freeway, arterials, and recently outcomes from demand management
 - Could also meet MAP-21 requirements
 - Excellent tool for providing input on current project prioritization
- Many projects on improved data, data storage, and decision support systems

TRAC-UW and Planning

- DRIVENet
- Pedestrian & bicycle
 - Counting,
 - Routing,
 - Inclusion in survey mechanisms

TRAC-UW and Planning

- Freight (mostly truck)
 - Counting
 - Performance measurement
 - Bottleneck identification and prioritization
 - New federal data
 - Modeling
 - Surveys

TRAC-UW and Policy

- Social equity
- Tolling
 - (almost all informal)
- Sustainability
 - Green roads
 - Also a lot done informally)
 - Energy (electricity)
- Distraction
 - Mostly in terms of science or training

TRAC / PacTrans Summary

- Universities are always interested in research ideas
- A great deal can be done with the Universities
 - Funded
 - You get to define the scope
 - Higher response rate and better students
 - Unfunded
 - Class events (is there a class you can take advantage of?)
 - Unfunded research (quality of student / expectation of an outcome / time invested)

How can I / We be of assistance?

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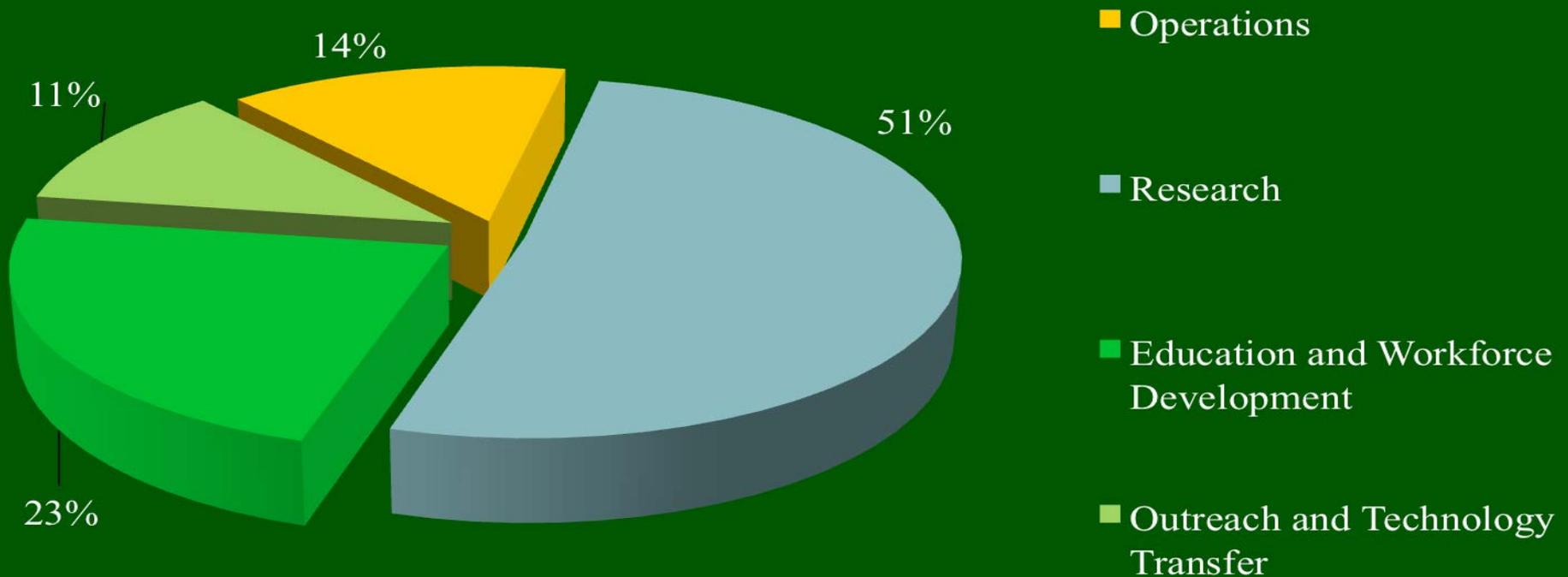
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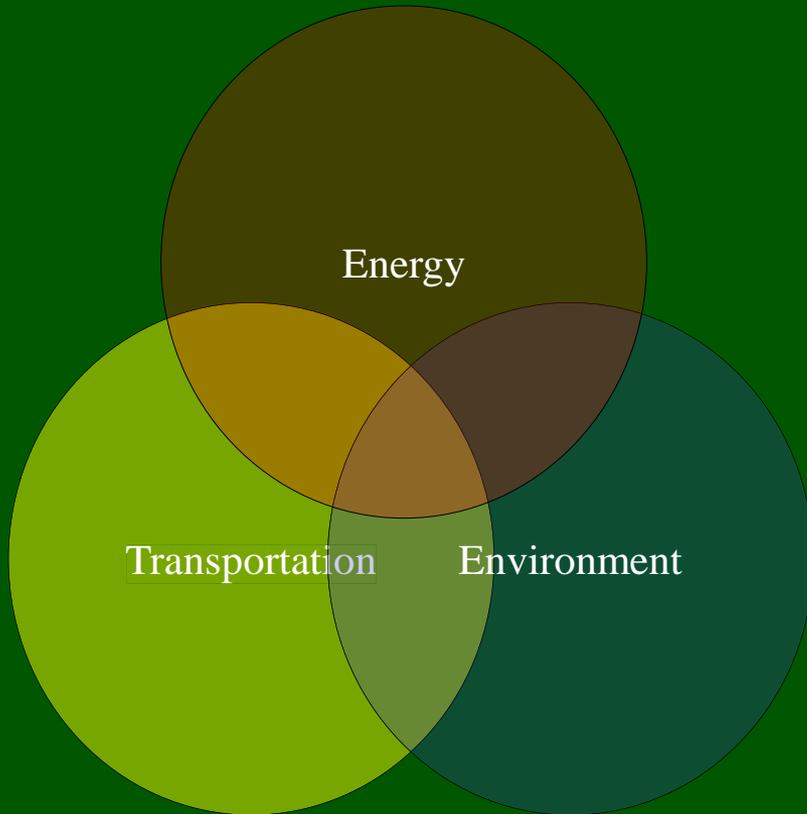
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