



Linx: An ITS case study

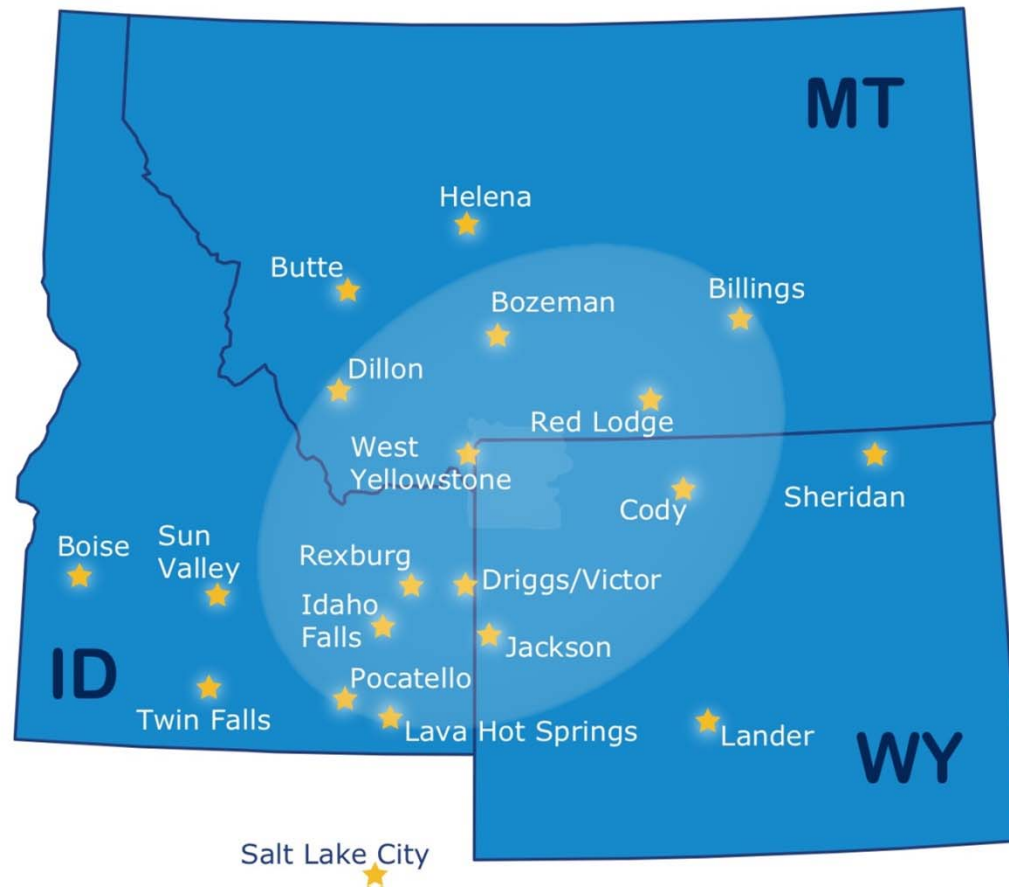
Chris Larson, The Software Ranch
Kim Billimoria, Yellowstone Business Partnership



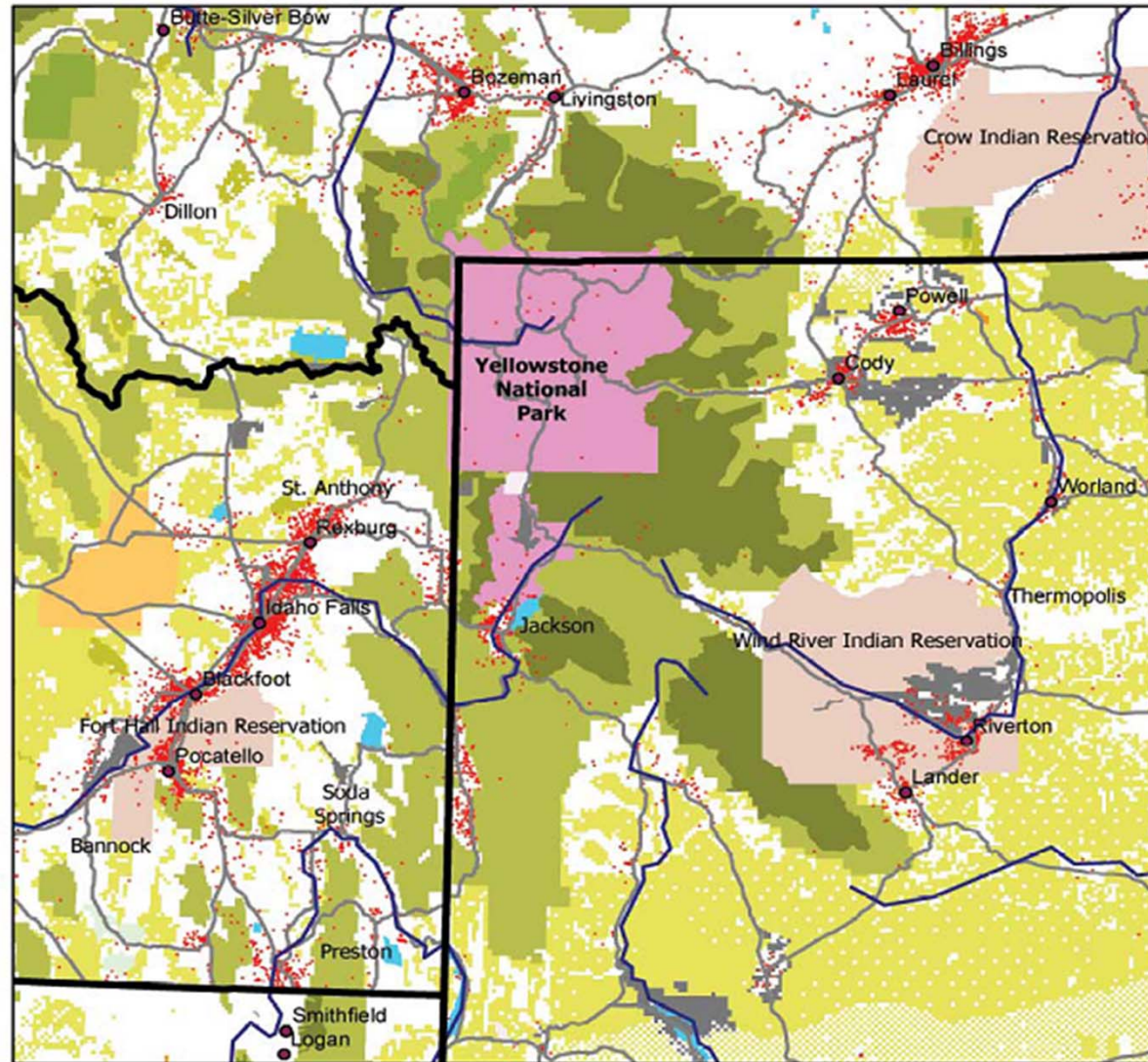
Linux: An ITS Case Study

- **Linux Regional Transportation Co-op**
 - Background and history
- **Linux Technology**
 - LinuxComm
 - Trip Planner
 - Lessons Learned
- **LinuxProvider Software**
 - Tools to manage transportation systems
 - Bus status & location
 - On-Time stats (on-time, early, late)

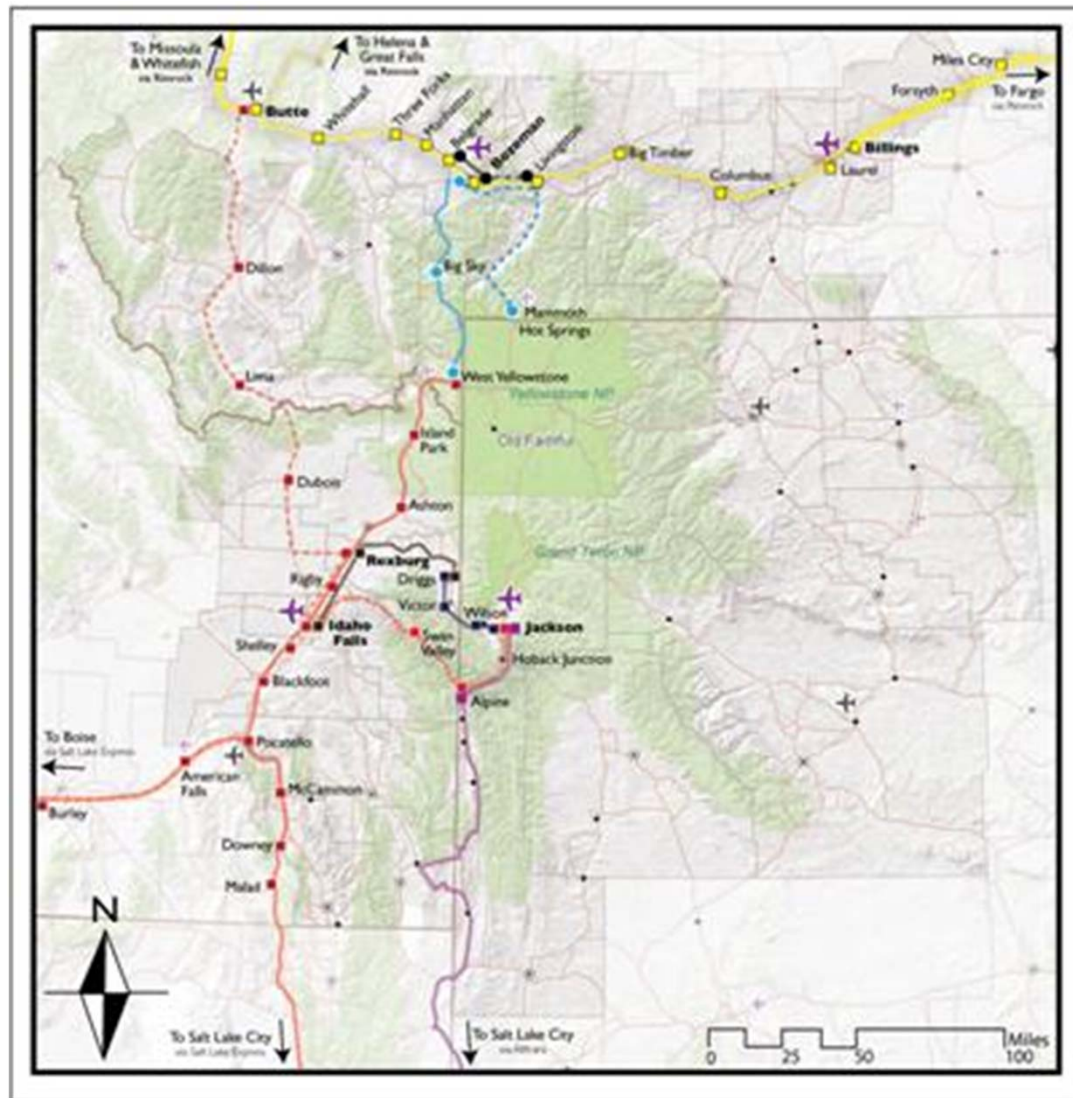
Connecting Greater Yellowstone



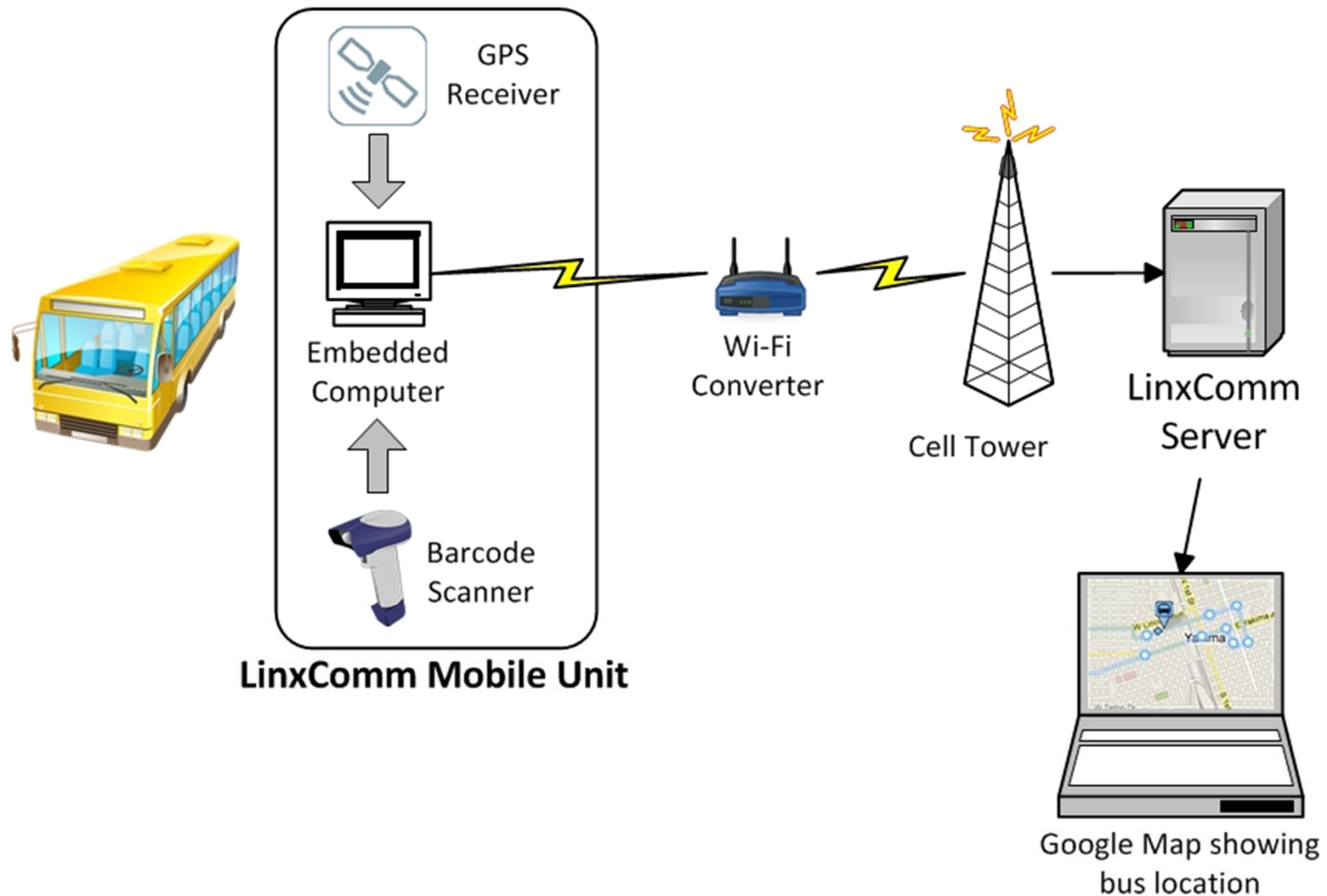
A diverse region with many boundaries



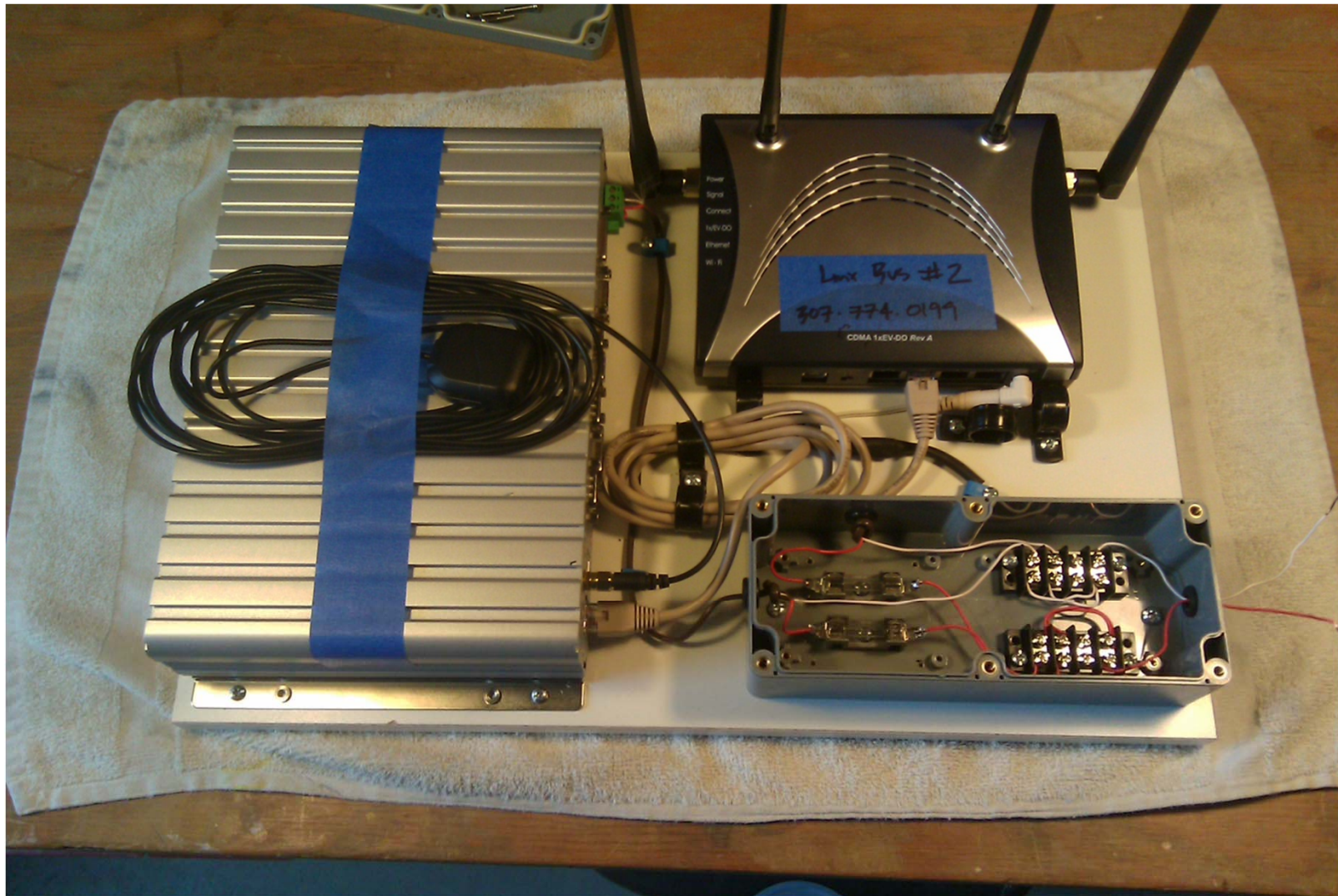
Bridging gaps



Linux Technology: LinxComm

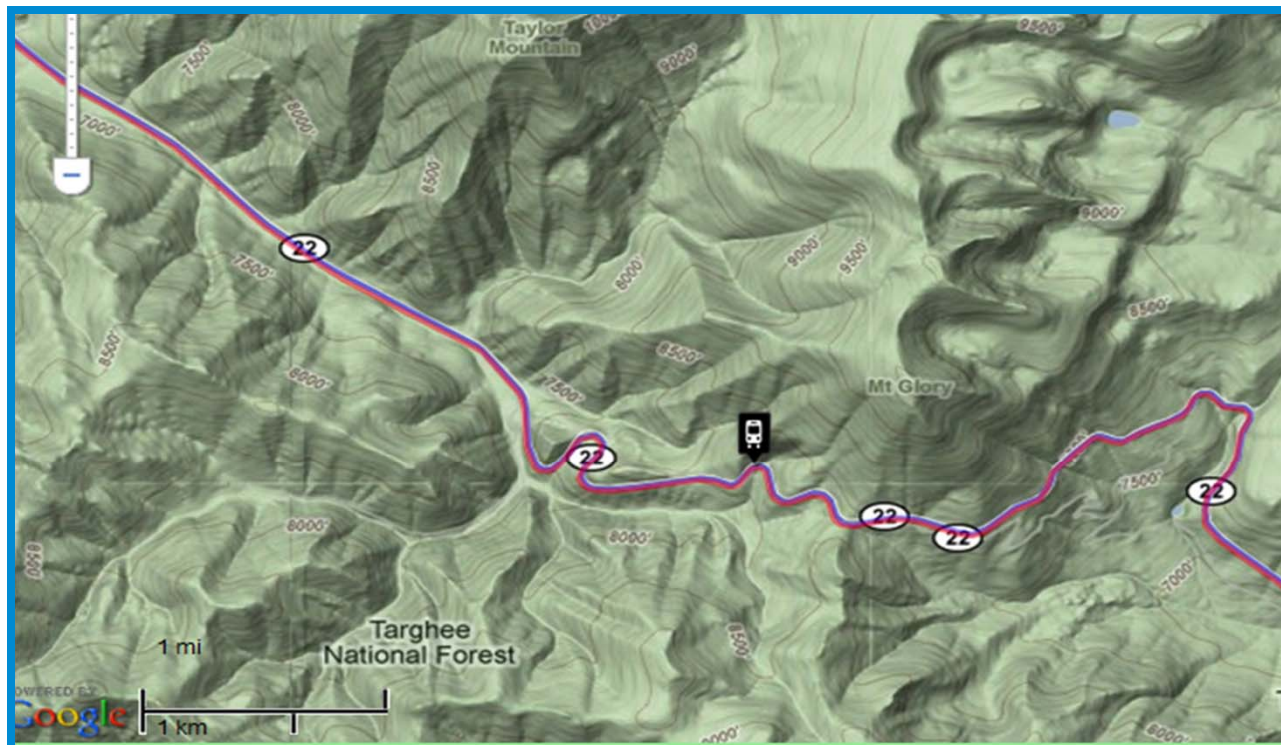


Linux Technology: LinuxComm



Linx Technology: LinxComm Demo

'Where's My Bus' Website Technology Demo



☐ Center Map On Bus

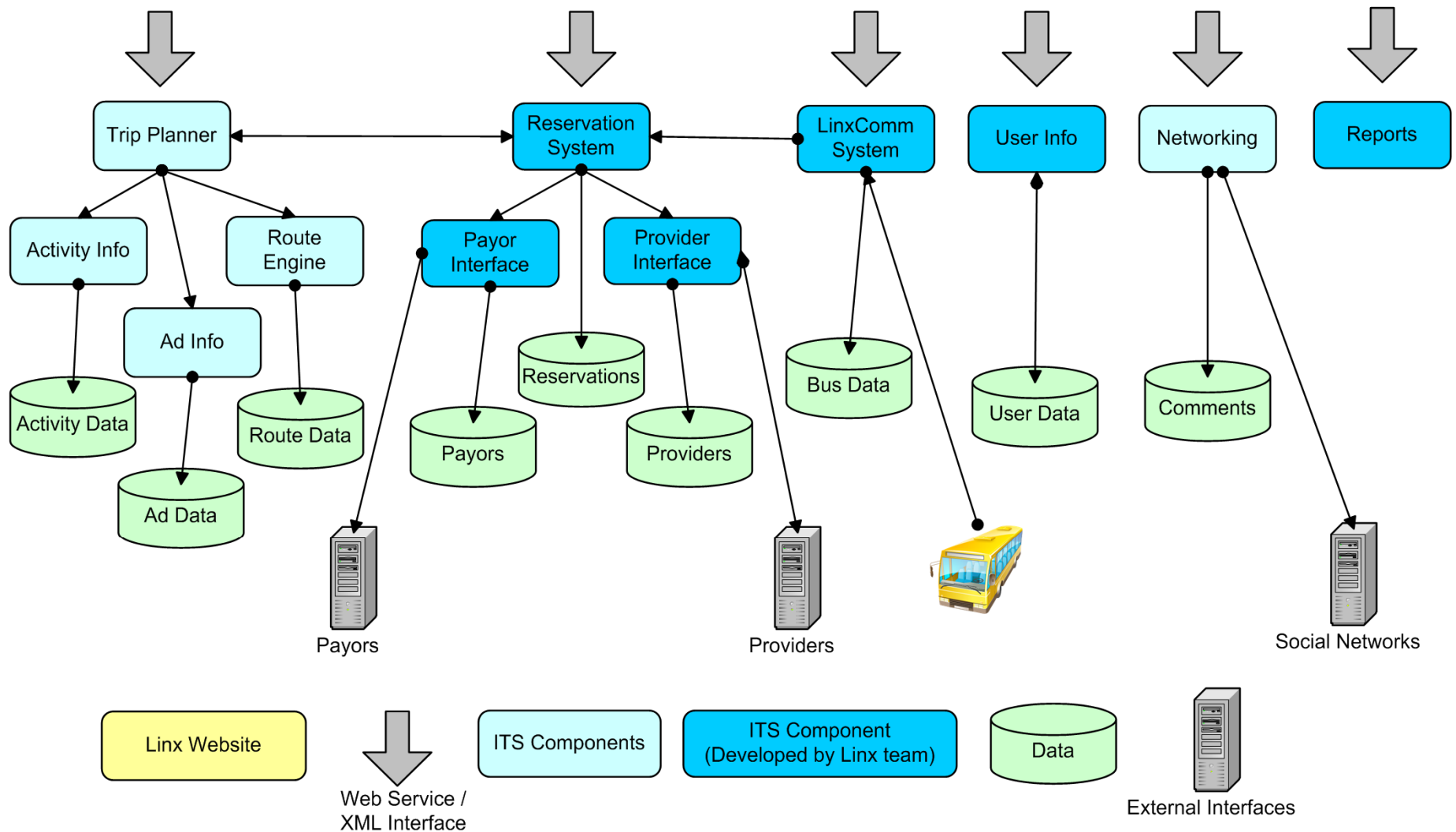
Name: Teton Pass Bus **Updated:** Fri, May 7, 2010 06:05:24 MST

Latitude: 43.5012 **Longitude:** -110.9628 **Speed:** 22.02 mph **Heading:** NE **Status:** OK



Linux Technology: Trip Planner

Linux Website / Mobile Devices / Programmatic interfaces



Linx Technology: Linx Website



Call to Book Now!
123.456.7890

[Home](#)[Plan My Trip](#)[My Linx](#)[Maps & Schedules](#)[Join Linx](#)[Where's My Bus](#)[FAQs](#)

Mobile office? Movie theater? Nap spot?
It's up to you when you ride Linx.

Quick Trip Planner

[Find My Trip](#)[Need Help?](#)[Traveling with Children?](#)

Connecting People and Places in Idaho, Montana and Wyoming



Popular Destinations

From Jackson Hole to West Yellowstone to the local zoo, Linx can get you there - while you enjoy the ride and let someone else worry about the driving.



Sweet Deals

Ride Linx to Yellowstone Business Partnership's annual conference (May 24-26). Busses departing from Idaho Falls, Billings and Bozmean.



Cool Things To Do

Soak in natural hot pools, attend a music festival or ski bottomless powder - Linx is the stress-free way to discover the region.



My Linx

Retrieve your itinerary, keep a list of places to go and things to do...

HOME | [PLAN MY TRIP](#) | [MAPS & SCHEDULES](#) | [WHAT IS LINX](#) | [CONTACT LINX](#)
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123.456.7890



Linux Technology: Trip Planner

Trip Details

Starting Point

State / Area: --SELECT--

City: Please Select a State

Stop: Please Select a City

Address:

Destination

State / Area: Please Select an Origin

City: Please Select an State

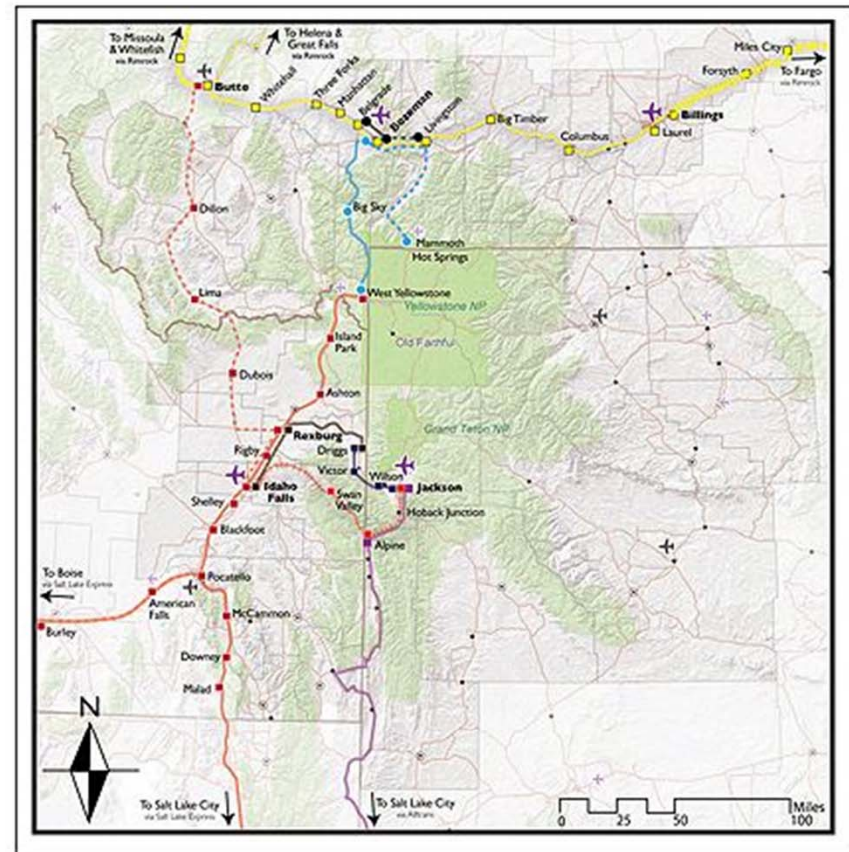
Stop: Please Select an City

Address:

Date/Time

Departure: 08/25/2011 03 : 00 PM

Round Trip: ☐ Yes ☒ No



Linx Technology: Trip Planner

Ride Times



Departure Date: **08-25-2011 3:10 3:10 PM**

Starting Point: **S. Main St.**

Destination: **E. Gill Ave.**

A Departing: **S. Main St. to Gill Ave.**



Area Activities

Consider checking out the following activities near your destination.

Eastern Idaho's Yellowstone Teton Territory

Your Adventure Begins in Eastern Idaho. This is where Mother Nature provides an unforgettable wilderness full of activities for people of all ages. 1-800-634-3246

Island Park, Idaho

Island Park is well known for its fishing, hunting, water sports and snowmobiling. Our Chamber Members offer many choices in dining, lodging and other amenities. Check out our members at www.islandparkchamber.org



Option 1: 6:33 AM - 7:52 AM

3:10 PM	Start at S. Main St.		
08-25-2011	Wait for a moment, you have spare time (15 hr, 24 min)		
6:33 AM	Turn left, heading North, to walk along Main St. to Main St. (feet, about 1 min)		
08-26-2011			
6:35 AM	Walk to stop Driggs Community Center (stop #78) at Main St. , serving route Teton Valley to Jackson		
08-26-2011			
6:35 AM	Wait for the TVJ-Teton Valley to Jackson, Jackson bus (2 min)	Start Bus 307-733-4521 View Website View Schedule	Fare: \$8
08-26-2011			
6:35 AM	Board and ride the bus		
7:37 AM	Get off at stop Stormy Circle (stop #10) at Broadway	Notify driver for drop-off	
08-26-2011			
7:37 AM	Turn left, heading West, to walk along Broadway to Broadway (4 feet, about 1 min)		
08-26-2011			
7:49 AM	Walk to stop St. Johns Hospital (N) (stop #11) at Broadway , serving routes		
08-26-2011			

Linux Technology: Lessons Learned

- **Timing/Schedule**
 - Artificial pressure/schedule
 - Insufficient Planning
 - Cut Corners

Linux Technology: Lessons Learned

- **Funding**
 - Limited budget given scope of work
 - Constrained choices
 - Inter-line agreements killed the revenue model

Linux Technology: Lessons Learned

- **Marketing**
 - Regional and national earned media
 - Website as cornerstone –one stop shop for large area and disparate market
 - Resources inadequate for size and scope of market
 - Delay in strategic marketing plan

Linux Technology: Lessons Learned

- **Management**
 - Lost Program Manager mid-project
 - Given the scope and centrality of technology to the project, the new Project Manager didn't have sufficient time or background

Linux Technology: Lessons Learned

- **Route Engine**
 - Heart of trip planner
 - Didn't scale from urban metro to large scale rural system (27 counties of GIS data and 5 providers last year)
 - Sub-contractor didn't have the experience to realize he was fixing symptoms and not the underlying problem
 - Most of the providers ran demand based systems which didn't fit well with a fixed route system

Linx Provider: Buses

Login

Reports

Buses

Bus Location

Log

Configuration

GTFS

Bus	Route	Last Update	Last Stop	Stop Time	Departed	Next Stop	Stop Time	Speed	Dir
201	Jackson to Star Valley	8/25 12:50 PM	Simpson and Willow-WB	12:46 PM	12:50 PM	Teton Steak House	12:47 PM	19.27	W
202	Green Line Jackson to Teton Village	8/25 9:04 AM							
203	Green Line Jackson to Teton Village	8/25 12:50 PM	Teton Village	1:15 PM				0.05	NNE
204	Teton Valley to Jackson	8/25 8:23 AM							
205	Teton Valley to Jackson	8/25 6:22 AM							
272	Town Shuttle	8/25 12:50 PM	Snow King Resort	12:45 PM	12:45 PM	Mike Yokel Park (S)	12:47 PM	5.22	NNW
273	Town Shuttle	8/25 10:37 AM							
274	Out Of Service	8/25 12:01 PM							
275	Green Line Teton Village to Jackson	8/24 3:04 PM							
276	Town Shuttle	8/25 11:13 AM							
277	Town Shuttle	8/21 11:38 AM							
289	Out Of Service	8/25 12:50 PM						0	NNE
290	Out Of Service	8/13 5:26 PM							
291	Town Shuttle	8/16 10:40 AM							
292	Out Of Service	8/21 5:32 PM							
293	Out Of Service	8/24 1:36 PM							
294	Town Shuttle	8/24 9:13 PM							
295	Out Of Service	1/1 12:00 AM							
296	Out Of Service	8/24 10:31 PM							
BB11	Out Of Service	8/17 4:01 PM							
BB14	Out Of Service	1/1 12:00 AM							
BB15	Out Of Service	1/1 12:00 AM							
G1	Out Of Service	1/1 12:00 AM							
G11	Out Of Service	1/1 12:00 AM							

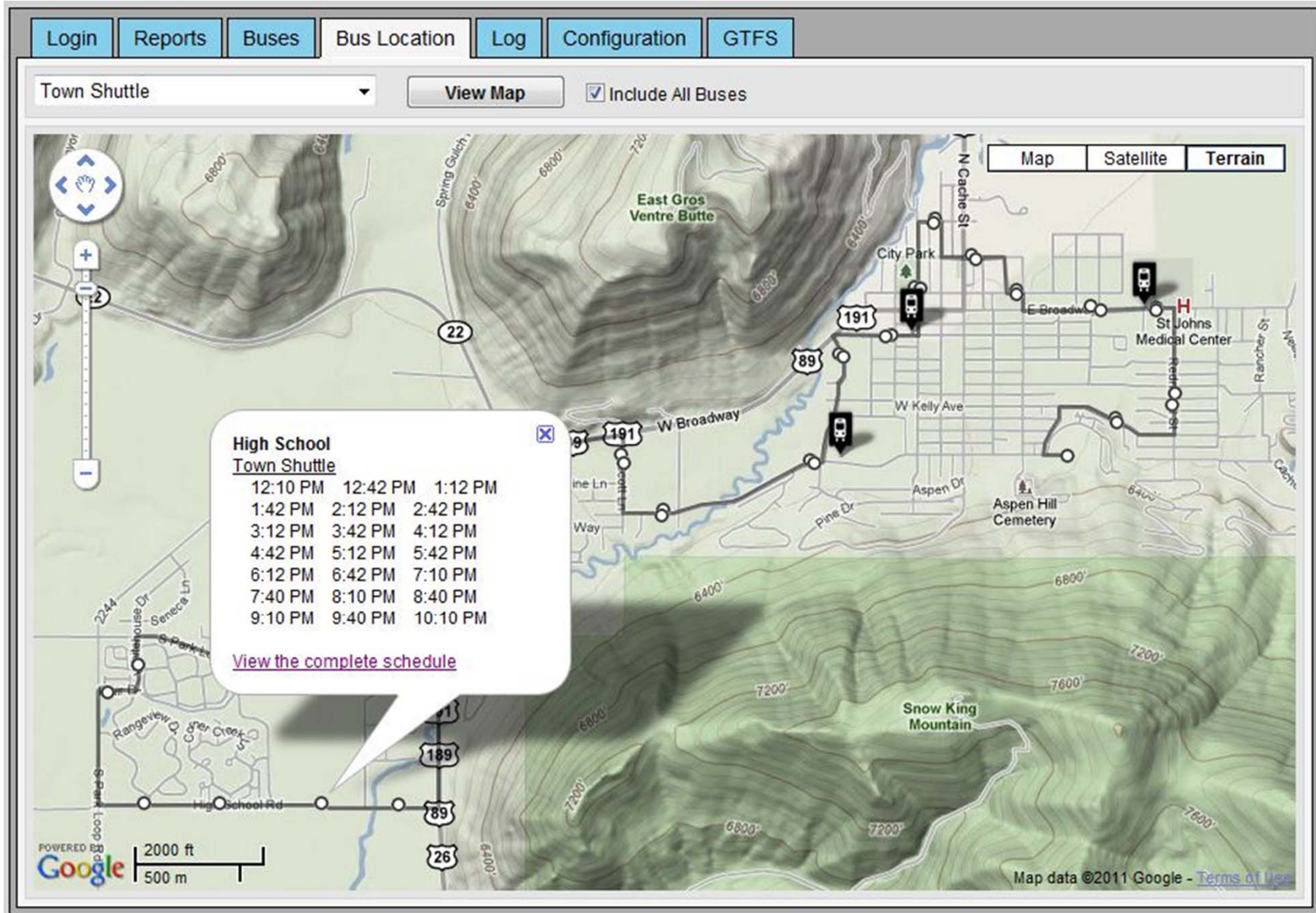
Green: Current

Yellow: Today

Orange: Yesterday

Red: Over 48 Hours

Linx Provider: Bus Locations



Linux Provider: Early/late Stats

Login

Reports

Buses

Bus Location

Log

Configuration

GTFS

On-Time (Route)

On-Time (System)

Early Departure

Late Departure

Range: Last Week

Start Date: 08-15-11

Start Time: 08 : 00 AM

Create Report

Route: Town Shuttle

End Date: 08-21-11

End Time: 05 : 00 PM

Download Report

Town Shuttle

Bus	Stop	Date	Stop Time	Depart Time
272	49er Inn	08-15-11	1:30 PM	1:37 PM
272	49er Inn	08-15-11	4:30 PM	4:36 PM
272	49er Inn	08-15-11	7:27 PM	7:33 PM
272	49er Inn	08-15-11	8:57 PM	9:03 PM
272	49er Inn	08-15-11	10:27 PM	10:38 PM
272	49er Inn	08-16-11	7:57 AM	8:04 AM
272	49er Inn	08-16-11	11:57 AM	12:06 PM
272	49er Inn	08-16-11	3:00 PM	3:05 PM
272	49er Inn	08-16-11	8:57 PM	9:05 PM
272	49er Inn	08-16-11	10:27 PM	10:43 PM
272	49er Inn	08-17-11	8:57 PM	9:06 PM
272	49er Inn	08-18-11	10:27 AM	10:32 AM
272	49er Inn	08-18-11	8:57 PM	9:03 PM
272	49er Inn	08-19-11	11:57 AM	12:03 PM
272	49er Inn	08-19-11	1:30 PM	1:37 PM
272	49er Inn	08-19-11	7:27 PM	7:35 PM
272	49er Inn	08-20-11	7:57 AM	8:02 AM
272	49er Inn	08-20-11	10:27 AM	10:33 AM

Linx Provider: On-time Stats

Login

Reports

Buses

Bus Location

Log

Configuration

GTFS

On-Time (Route)

On-Time (System)

Early Departure

Late Departure

Range: Last Week

Start Date: 08-15-11

Start Time: 08 : 00 AM

Create Report

Route: Town Shuttle

End Date: 08-21-11

End Time: 05 : 00 PM

Download Report

Town Shuttle

Stops	272			273			275			276			277			293		
	On Time	Late	Early	On Time	Late	Early	On Time	Late	Early	On Time	Late	Early	On Time	Late	Early	On Time	Late	Early
Snow King Resort	12%	12%	75%	45%	0%	55%	100%	0%	0%	50%	0%	50%	--	--	--	--	--	--
Mike Yokel Park (S)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Redmond & Hansen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
St. Johns Hospital (N)	100%	0%	0%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Broadway & Gros Ventre (N)	100%	0%	0%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Deloney & King	100%	0%	0%	100%	0%	0%	--	--	--	100%	0%	0%	--	--	--	--	--	--
Home Ranch	100%	0%	0%	40%	60%	0%	--	--	--	67%	33%	0%	--	--	--	--	--	--
Historical Society	100%	0%	0%	40%	60%	0%	--	--	--	67%	33%	0%	--	--	--	--	--	--

Linx Provider: On-time Stats

