



MEMORANDUM

Date:	Monday, November 1, 2021
To:	Project Leadership, Front Range Rail Commission, and Stakeholders
From:	Chris Enright and Lisa Streisfeld
Subject:	User Experience: Potential FRPR Amenities

Part of the definition and refinement of a Front Range Passenger Rail system inherently must include a vision of user experience (UX), and in this domain capturing some basic characteristics of the train, stations, and overall way that people use and experience travel along the corridor. For effective and competitive service, the overall UX (both in terms of travel time and comfort) must be greater than the UX of driving independently on the roadway network. This memorandum addresses the comfort aspects of the proposed UX; first defining the user groups and required elements, then elaborating on proposed on-board and station experiences. This memorandum attempts to serve as the beginnings of a functional specification, representing our intent as a project team, fully acknowledging that the specifics will remain in discussion and deliberation as the project advances.

Note that this memorandum is intended to describe the perceived state of the art for passenger train service in North America, and as technology advances, this expectation and functional goal for user experience will change as well.

In order for FRPR to compete with bus transit, private shuttles, Transportation Network Companies, taxis, or single passenger vehicles, the passenger experience must be safe, reliable and easily accessible. For purposes of describing the passenger experience, the trip planning, trip ticketing, access to stations, user experience at the station, and the ride on the train are all considered. Operationally, the train ride must have consistent travel times, on-time departures, and on-time arrivals. The train should provide a desirable alternative for passengers who do not drive, do not have a vehicle, do not have access to transit, or do not want to drive on the highway network. The train should provide an alternative mobility option during inclement weather when highway operations may be compromised.

USERS

Public outreach, modeling, and discussion with other systems suggests two key user groups being served by FRPR service: commute and leisure. Quality service to both user groups is a goal and informs the overall user experience.

Commuter traffic generally follows a hub and spoke pattern, with a majority of traffic toward Denver in the AM peak, and majority departing Denver in the PM peak. Commute traffic is assumed to require comfortable, reliable service at times that serve their intended travel times. Leisure traffic does not particularly follow this pattern, and can act against peak, on weekends, or be target to special events such as the Renaissance Festival, sporting events, or other attractions across the region, and captures traffic to and from airports. Leisure traffic is assumed to require comfortable service that includes significant amenities, including food and alcohol service onboard.

ESSENTIAL ELEMENTS OF UX

Commuter Traffic	Leisure Traffic
Speed	
Safety of train ride and passenger waiting areas	Safety of train ride and passenger waiting areas
Consistent arrival, departure, and travel times.	Consistent arrival, departure, and travel times.
Travel cost, value, competitiveness with other mobility options	Travel cost, value, competitiveness with other mobility options
Ease of switching modes or making connections	Ease of switching modes or making connections
Wi-Fi	Wi-Fi
Charging Connections (USB and 110AC)	Charging Connections (USB and 110AC)
Comfortable seats	Comfortable seats
Restroom	Restroom
Bicycle storage	Bicycle storage
Food (coffee) service	Food (snack) service
Quiet Car	Alcoholic beverage service
Route/Schedule information	Luggage rack
	Tourist information

STATION AMENITIES

Complimenting the passenger on-board experience, the station user experience must match the luxury and comfort provided on the train that is a more pleasant and enjoyable experience to driving or other modes.

To deliver the station experience needed, the following elements are proposed:

1. Multimodal Access
 - a. Integrating park and ride, EV charging, and other multimodal access modes into the station to ease transition between trains and other modes
 - b. Micromobility options presented at the station, such as shared e-bikes or scooters
 - c. Pick up and drop off area
 - d. Bike racks and lockers
 - e. Parking
 - i. Passenger vehicle parking (short term and long term)



EV Charging Station at the Warm Springs, CA BART Station

- ii. Dedicated carpool and vanpool parking
- iii. Digital parking payment and management system
- iv. Motorcycle and scooter parking
- 2. Well-lit, secure, and patrolled station, parking, and platform areas, 24 hours a day.
- 3. Comfortable waiting areas
- 4. Heated Platforms
- 5. Passenger Information
 - a. Large messaging signs, providing real-time schedule updates, train statuses, and other essential information would be provided both at platforms and in waiting areas.
 - b. Ticketing kiosk
 - c. Informational kiosk with FRPR system maps
- 6. ADA-Accessible features
- 7. Context-sensitive facility design
- 8. Commercial activities
 - a. Possible commercial activity for food, drinks, durable goods, merchandise



Amtrak Greensboro NC Station

ON-BOARD EXPERIENCE

Drawing from the list of required UX elements, the on-board experience is proposed to include the following elements:

- 1. Train-wide access
 - a. Trainsets to include wide aisles, wheelchair parking locations, accessible restrooms, and other provisions to ensure entire train is capable of being accessed by wheelchair users.
 - b. Reserved seating for seniors and persons with disabilities
 - c. Train doors would be capable of serving level-boarding platforms and low-boarding platforms, using automatic gap filler and trap door technologies.
- 2. Modern furnishings and features
 - a. Comfortable seating would be provided throughout the train, including headrests, footrests, armrests, and tray tables with no middle seats (2-abreast seating)
 - b. Fold down desk trays
 - c. Large windows for scenic viewing
- 3. Food and beverage service
 - a. A dedicated café car, staffed to provide both food and beverage service, as well as tourist information, and other sightseeing lounge features.



Amtrak Acela/Avelia

[\(https://railcolornews.com/2019/08/29/us-take-a-look-inside-the-new-acela-high-speed-trains-for-amtrak/\)](https://railcolornews.com/2019/08/29/us-take-a-look-inside-the-new-acela-high-speed-trains-for-amtrak/)

4. Restrooms would be provided, with ADA accessibility.
5. Bicycle and luggage storage
 - a. Overhead small luggage storage
 - b. Bicycle storage on the front half of the control cab car
 - c. Large luggage storage on standard passenger coach
6. Connected user features
 - a. Charging ports would be provided at each seat, allowing each passenger to charge devices using USB-A, USB-C, and 110AC.
 - b. High-speed Wi-Fi connectivity would be provided throughout the train, allowing productivity while travelling.
7. Passenger Information
 - a. Video displays
 - b. Public address systems would provide basic information to passengers on upcoming stations, train speed, and other essential information about the trip.
 - c. FRPR Rail System Maps
 - d. Connecting transit system options by destination



Siemens Venture – coach seating
(<https://www.mobility.siemens.com/us/en/portfolio/rail/rolling-stock/venture-trainsets.html>)

SUMMARY

By providing an alternative transportation option for Colorado residents and visitors, Front Range Passenger Rail travel reduces greenhouse gas emissions, provides a designated driver, and enhances safety by reducing the number of vehicles on the road, and on the highways coming to and from Denver to the Front Range Communities. This memorandum serves as a wish list of options and objectives to be incorporated into Front Range Passenger Rail.



Siemens Venture - restroom