Rural Transit Service Design: Matching Service to Meet Needs

Ken Hosen - KFH Group, Inc.  
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An Overview

• This session is an overview of our service design class
Adapt And Change…

• Demographics, technology, and communication have made our world very different from just ten years ago.
• Rural areas have changed, yet often stay the same.
• If we do not adapt and change, then we run the risk of being irrelevant to our community.
Or Become Irrelevant

• “There’s a bus service here? I lived here all my life and didn’t know there was a bus.”

• “Oh, isn’t that the bus for the elderly and disabled.”

• Or go belly up
Does Your System Look Like This?

Service Design
Our Agenda

• Introduction
• The Philosophy of Cost Control
• Service Design – More than Fixed Route and Paratransit
• Why Fixed Route? Let’s Make the Case
• Fixed Route Guidelines and Attributes
• The Bus Stop – Transit’s Front Door
• Participants Will Sum Up
That's the way we've always done it.
The Overarching Goal for Transit

Provide more service, ridership and greater mobility for all residents and visitors in a safe, efficient and effective manner
Introduction to Service Design: Making the Right Choice?

• Service design makes all the difference:
  • *Poor service design is like placing staff in handcuffs and expecting better job performance.*
  • The right choice: maximize ridership and reduce costs.
  • If you make the wrong choice the result will be:
    • low ridership and high cost per trip
    • your system will be irrelevant and
    • your dog won’t want to walk with you.
The Philosophy of Cost Control

- In reality, the best way to lower costs is through productivity improvements.

- Measuring productivity as one-way trips per service hour:
  - For example, at a cost of $50 per hour a productivity of 2 trips per hour will yield a cost of $25 per trip
  - 4 passengers per hour brings the cost to $12.50
  - 10 trips per hour?
  - 25 trips per hour?
Productivity

• Paratransit productivity is inherently low and can be affected by a variety of controllable and uncontrollable factors:
  • Uncontrollable factors: Terrain, speed limits, number of slow moving passengers for example
  • Controllable: Experience and skill of staff, service parameters, vehicle condition and more
• Under any scenario, paratransit productivity has a ceiling above which the system cannot safely go.
The “Paratransit Trap”

- Paratransit/demand response/dial-a-ride is the most expensive form of transit to operate on a per trip basis.

- It is also the most difficult form of transit to operate.

- So ask the question, go ahead!
Tailor Service To Fit Your Service Area Needs

*IT IS NOT JUST PARATRANSIT ANYMORE!*

- Take advantage of your service area attributes
- Keep your eye on the prize – ridership!
Taking Advantage of Your Transit Attributes

• Consider the transit attributes (product lines) of your service area:
  -- College
  -- K through 12 student transportation
  -- Military or other government installation
  -- Human service (Medicaid and Job Access)
  -- Local town with retail centers
  -- Large corporations/employment - commuters
  -- Proximity to large cities - commuters
  -- Special events
  -- Tourism – Ski Season
  -- Shopper shuttles
  -- Intercity
  -- Solution to parking problem
Service Designs

- All work in areas like yours
- Designed to group trips
- Will reduce paratransit needs
- Reduce county wide paratransit (most expensive of all)
- Don’t compete with yourself
Dial-a-Ride

• Demand-response in real time
• Similar to a taxi, but group trips
• Most appropriate for small well defined service area of a few square miles
• Can be for evening and weekend general public transit service in small urban areas

• Productivity
  • Productivity limited -- 1 – 6 one-way trips per hour, depending on the service area
Fixed Schedule Service

- Works well in larger rural areas when there are not enough resources to cover all parts of the service area at all times
- Serves areas according to a schedule that is clearly posted and well marketed
- Experience indicates that passengers accept this approach, and doctors and hospitals will cooperate

- Productivity - 6-12 one-way trips per hour
Service Routes

- Many systems operated them before term was coined, e.g., shopper shuttles
- Requires careful planning
- Service oriented to specific clientele (e.g., elderly) to specific destinations (such as medical and shopping)
- Can be scheduled for specific days and times
- Serves to group trips
- Can get sponsor – grocery stores, big boxes, etc.

*Productivity* - Limited by vehicle capacity
Flex Routes (Route Deviation)

- Requires fairly low densities, suburban or small town
- Most appropriate for long low population density routes where paratransit is impractical
- Replaces the need for Americans with Disabilities Act (ADA) paratransit, by performing two functions with one vehicle
- Unfortunately in urban areas it provides a lower quality service for all.

*Productivity - Vehicle capacity*
Fixed Route is Old School, It’s Old!

• So how about some new ideas?
• Fixed route yields the highest productivity and consequently transports the most passengers.
• Fixed route is used throughout the world and will continue to be until buses can fly or you can beam me up.
• Fixed route is proven and it produces the lowest cost per trip. Period.
Okay, There is One Caveat

• **Americans with Disabilities Act (ADA) Paratransit:**
  • The ADA requires any system operating fixed route to either provide complementary paratransit for customers unable to use fixed route system or operate a flex route.
  • Going from paratransit to fixed route: Overall there will be fewer paratransit riders as most will be able to use fixed route.
  • Since some paratransit vehicles will still be in service, they can handle all paratransit needs.
  • It is relatively simple
Mag-Lev and Monorail

• Forward thinking – get started now!
• Great for getting around traffic - Beam me up
• Great for intercity service – Denver to Aspen – 15 minutes!
• Only costs about $50 - 100 million per mile to build or about $20,000 per foot. Chump change!
# Service Designs

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countywide Paratransit</td>
<td>1-2 trips per hour</td>
</tr>
<tr>
<td>Urban Paratransit</td>
<td>1-4 trips per hour</td>
</tr>
<tr>
<td>Dial-a-Ride - Zoned</td>
<td>4-8 trips per hour</td>
</tr>
<tr>
<td>Fixed Schedule - County</td>
<td>6-12 trips per hour</td>
</tr>
<tr>
<td>Flexible Routes</td>
<td>Vehicle Capacity</td>
</tr>
<tr>
<td>Service Routes</td>
<td>Vehicle Capacity</td>
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<tr>
<td>Fixed-Route</td>
<td>Vehicle Capacity</td>
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</tbody>
</table>
Applying Fixed Route Services: Some Key Considerations

- Service Area Configuration
- Population Density
- Transit Dependent Population and Percentage
- Major Destinations
- ID Service Corridors
- Fixed Route Guidelines
- Bus Stops and Accessibility
Service Design Guidelines

Different areas require different services

- Understand service area attributes
- Understand needs
- Avoid the LOOPERS
- Always seek to group trips
- Paratransit: don’t build your service based on an exception
- Maximize fixed-route/fixed schedule: follow a schedule!
- Keep it simple don’t try to do too much with a route
- DO NOT COMPETE WITH YOURSELF
- Market the service, then market some more
Rules of Thumb

• Small cities can use at a minimum, about 1 fixed route bus per 10,000 population (unless there are mitigating attributes)

• Average speed for fixed route in town is 15 – 18 MPH.
  • So if you have a route 9 miles long, it can be completed in 30 minutes.

• It is good to have a rear door to speed boarding and alighting
Understand Your Service Area

• Get out in the community and drive around
  • Get very familiar with the service area
  • Don’t get a ticket for driving erratically
  • Don’t drive like him!
  • Have someone drive you
• Origins and destinations
• Patterns should emerge
The Drivers Can’t Even Figure This Out!

- 1 hour meandering fixed route
- 2 – 3 trips per hour
- Every stop is a timing point
- Has an untimed meet with the other route
Try This

• Two routes from one
• Simple out and back
• Timed meets with many
• All key origins/destinations
• Includes unserved area
• Timing points are spread out
The Ultimate Looper!

- A two hour rural loop
- Everyone that used it had a 2 hour round trip
- Eastern section has zero origins/destinations
- Origins throughout west segment, but no stops
- Untimed meets
- Very low ridership

Service Design
This Makes More Sense

- Out and back route
- Eliminates 2 hour ride
- Stops where people reside
- Timed meet in town
The Bus Stop: Transit’s Front Door
A Few Pictures!

If the bus stop or pathway is intimidating, unsafe, hidden or inaccessible then how can we expect people to use transit?
Appealing!

Service Design
This Stop Has It All!
Watch Your Step!

Service Design
Sum It Up – Your Turn

- What will you take away from this workshop?
Contact Information

• Ken Hosen, KFH Group, Inc.
  512-372-8807
  khosen@kfghgroup.com
  KFHGroup.com