The Basics of Rural Transit Service Design for the 2020s



KFH Group, Inc.

Conducted for: The National RTAP

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Speaker Introduction



Ken Hosen, Vice President, KFH Group, Inc.

- Transportation planner and operations expert with over 30 years of experience working with transit systems of all sizes
- Background includes paratransit management and planning, human service transportation management and planning, rural and small urban transit systems, project evaluation, technology research and procurement, and writing practical guidebooks for transit professionals
- Nationally recognized trainer, with hands-on transportation management and operations experience in the public and private sector
- Served on the Certification Council of the Community Transportation Association of America (CTAA) and is a member of the Access Committee of the American Public Transportation Association (APTA)



It's not the 1990s Anymore!

- Time to toss out the 1990s and embrace the present
- Technology is part of the answer and it helps, but
- Smart service design is the key to success
  - Gaining a greater awareness of productivity – *the "driver" of costs and ridership*
- Knowing when to apply each service type is the major takeaway today

Goals of the Workshop

Provide more ridership and greater mobility for all residents and visitors in a safe, efficient and effective manner

Making a difference!



An Introduction to Service Design: Our Agenda

- This session will give you something to think about, including:
  - Adapting to the Changes all about us
  - Cost Control and Productivity
  - Applying the Right Service Design for the Need





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Introduction

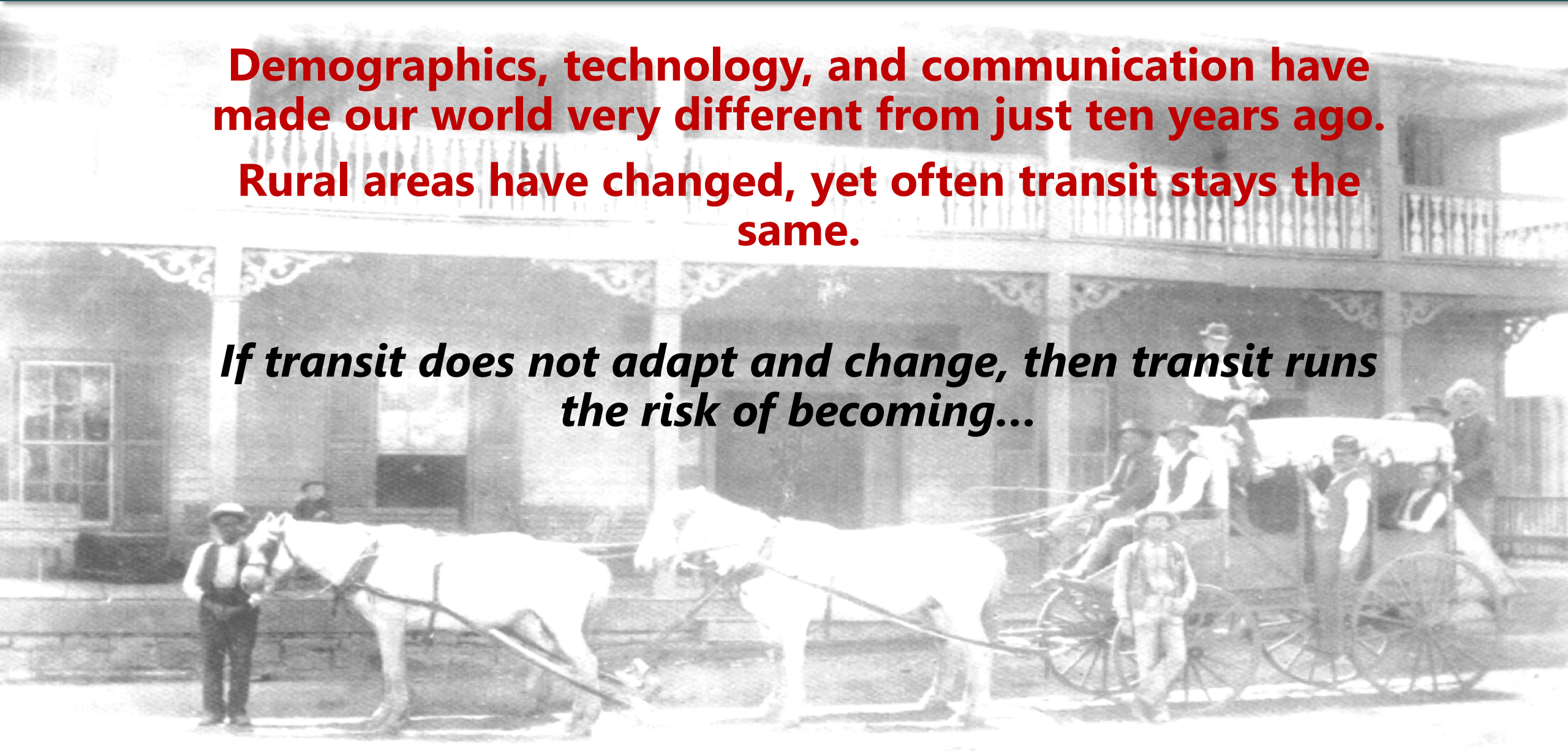
The Great Philosopher Garth
Once Said….

"We Fear Change!"





Yes, Fear Change, but Embrace It



Demographics, technology, and communication have made our world very different from just ten years ago.

Rural areas have changed, yet often transit stays the same.

If transit does not adapt and change, then transit runs the risk of becoming…

Irrelevant in the Community

"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."





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Change is the Future of Transit



No one can predict the future; however, it is easy to predict that change will be the future of transit.

COVID has changed everything and will have a long-term impact on transit. That impact is not due to fear of the virus alone, but rather a reduction in the need to travel as more people go on-line rather than go out.

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The New Normal

This much we know – some things will change and taken as a whole; they will have an impact on rural transit:

- Tele-Medicine
- Tele-Health
- Tele-Monitoring
- Delivery services
- Working from home
- Microtransit and other new modes and technologies as appropriate
- Social distancing is probably around for a while



Now Productivity is More Important than Ever

Productivity and Cost Control

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

Measuring productivity as one-way trips per service hour

First, Safety is always the first consideration.
An 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? **5 bucks**

25 trips per hour? **2 bucks**



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The Philosophy – The Paratransit Trap and Fixed Route

Paratransit productivity is **inherently low** and can be affected by a variety of controllable and uncontrollable factors.

As a result, cost per trip is higher than any other transit mode

*Paratransit is the **hardest** thing to do in transit*

*Fixed route is capable of the **highest** productivity*



In the end, it is a Progression?

Often a system needs to graduate to a **hybrid service or fixed route**.

Higher productivity yields more ridership and lower costs!



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Service Design: Step Away from the 1990s!

Introduction to Service Design:
Making the Right Choice?

The most appropriate service for the need:

- In town service
- Countywide
- Regional routes
- Remote rural service

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.

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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 and Medicaid
Local town with retail center	Large corporations - commuters	Proximity to employment centers/cities - commuters	Special events
Tourism	Shopping and Big Box Stores	Intercity	Solution to parking problem

Not Just Where, It's Also When

- Different **riders** have different **needs**:
  - Commuters need to be at work before 8 a.m. and leave after 5 p.m. (for example)
  - Customers going to: school, shopping, personal business, etc., don't want to spend 9 or 10 hours in town. Mid-day service?

- Question: Which route will **generate** the most **ridership**?
  - A 50-mile route between Community A and Small City B:
    - The bus arrives in the small city at 8:50 a.m. and departs at 4:30 p.m. or
    - One that arrives at 7:50 a.m. and departs at 5:20 p.m.
  - What if there were a mid day round trip?



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Coverage Vs. Ridership?

Coverage and Ridership - often mutually exclusive

Seeking Coverage

- *All things to all people* – Means serving areas that can't really sustain fixed route service, but doing so as an equity or political issue:
  - Loop routes are usually the result of this requirement
  - Routes take too long – The ice cream rule applies
  - Empty buses and bad publicity

Seeking Ridership & Coverage

- Means focusing on:
  - The parts of the service area that can justify fixed route and
  - Provide a different solution for the low-density areas.



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Service Design: The Right Service for the Need

Paratransit

- In real time (microtransit) or advance reservation. Yields a productivity of 1 – 6 one-way trips per hour in most cases. Works best in small well defined service areas.

Fixed Route

- The standard service around the world has its place in rural and small urban transit. Produces the highest productivity under certain conditions.

Hybrid Services

- These services are a cross between fixed route and paratransit. A variety of hybrid designs can be relatively productive in remote rural areas.



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Paratransit and its Variants

- 1990s Service - Traditional day in advance service in **town** or **countywide**.
- ADA Paratransit – Required to complement fixed route
- Real Time Options





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Microtransit: Dial-a-Ride with an App

- The service model dates to the **1970s** and in the **1980s** technology was deployed
- Small buses/minivans/sedans
- Works best with microtransit technology
- Similar to a TNC, e.g., Uber/Lyft, but groups trips
- Most appropriate for lower density, small well defined service zones of a few square miles.
- Can be for **evening** and **weekend** general public transit service in small urban areas

- *Productivity*
  - Productivity typically – 1 – 6 **one-way trips** per hour, depending on the service area



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Fixed Route is Old School

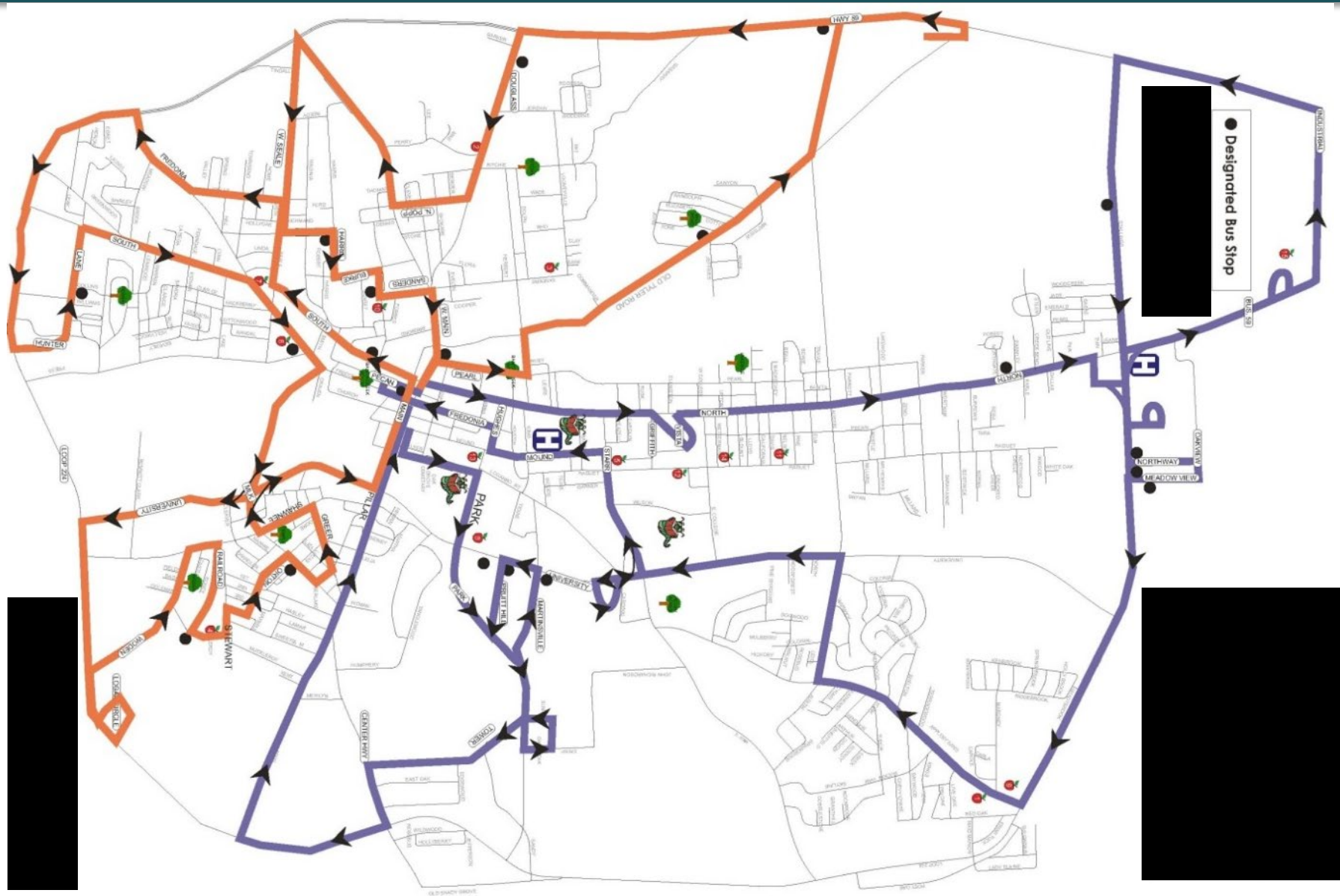
- Fixed route can yield the highest productivity and the **lowest cost** per trip, consequently transporting the most passengers.
- Fixed route is used throughout the world and will continue to be until buses can fly or you can beam me up.
- ADA **complementary paratransit** is required.
- But in rural areas you have to pick your spots:
  - Long distance routes
  - Small cities starting at **25,000 population** unless significant transit attributes
- But fixed route has to be done right.



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We Put the Service Out There, but They Won't Ride!

Going Nowhere Area Transit System (GNATS)



Great Coverage! Poor Service

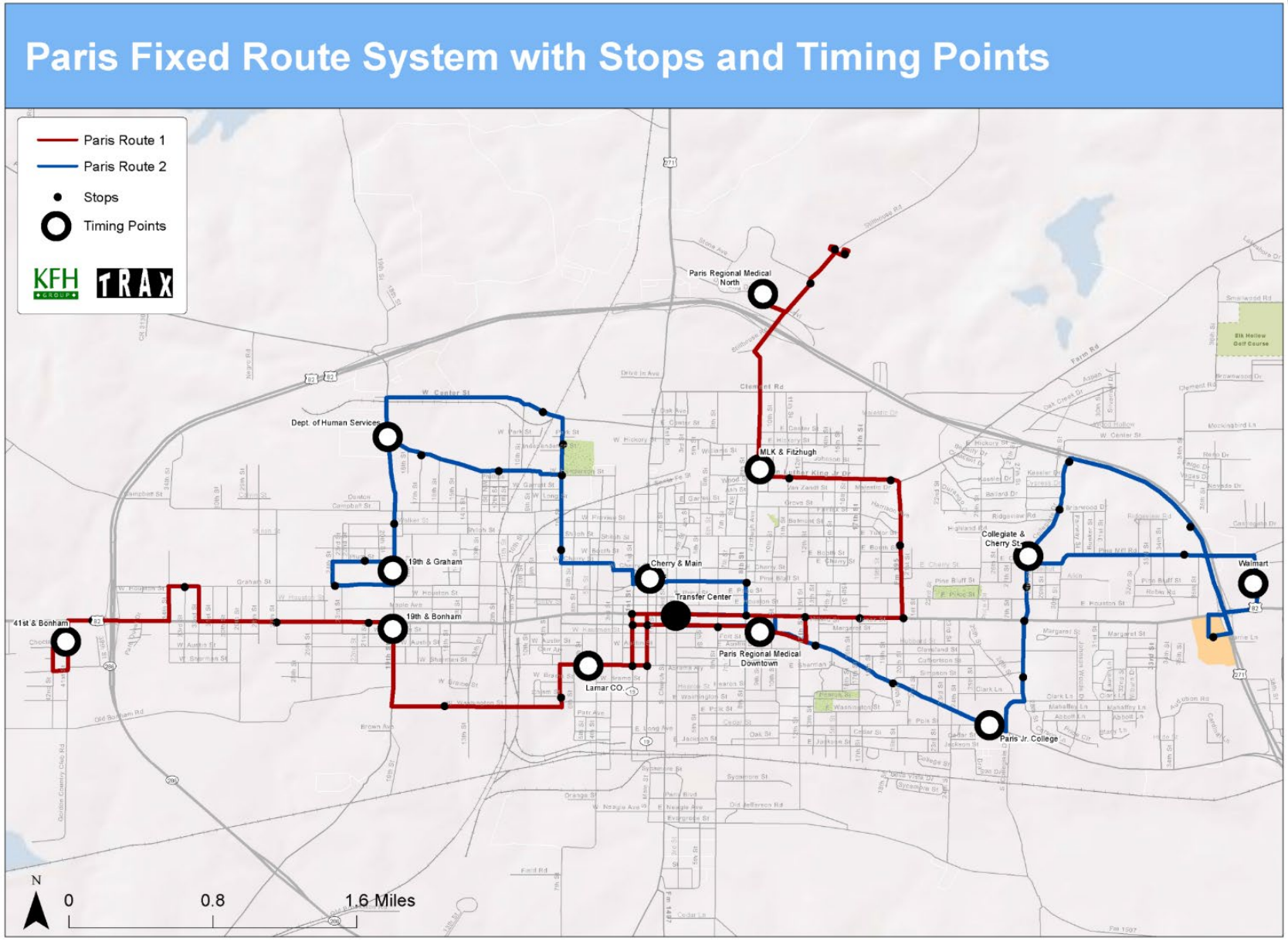
City of 25,000 with a university of 15,000

Who would ride this service and why?	Almost no ridership. The loopers will get you every time!	Does this system meet the Ice Cream Rule?



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Fixed Route: The Right Way or the Wrong Way



Hybrid Services

- A family of ***scheduled*** **services usually with no specific route**
- Requires fairly low densities, suburban or small town
- Most appropriate for:
  - long, low population density routes
  - Isolated rural areas
  - Small towns



Fixed Schedule Service

- Works well in **larger/remote rural areas** when there are not enough resources to cover all parts of the service area at all times.
- Serves different areas according to a schedule that is clearly posted and well marketed.
- Can be one or more days per week.
- Experience indicates that passengers accept this approach, and doctors and hospitals will cooperate.

- **Productivity** - 6-12 one-way trips per hour



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CARTS

Effective date January 4, 2016

CARTS RIDE LINE 1-512-456-RIDE (7433)

CALDWELL COUNTY

RIDES ARE SCHEDULED MONDAY-FRIDAY FROM 8:00 AM TO 4:00 PM / 24 HOURS ADVANCE NOTICE RECOMMENDED LOCAL VEHICLES SERVE NEIGHBORING TOWNS SO LOCAL RIDE TIMES MAY VARY

Community Served	Destination	Route Day	Departure	Return	One-Way Fare	Reduced Fare*
DALE	To: San Marcos	Monday & Friday	7:30a	12:00p	$6.00	$3.00
	To: Lockhart	Monday & Friday	7:30a	12:00p	$4.00	$2.00
FENTRESS	To: San Marcos	Thursday	9:00a	12:00p	$6.00	$3.00
	To: Lockhart	Monday	9:00a	1:00p	$4.00	$2.00
	To: Luling	Friday	9:00a	12:00p	$4.00	$2.00
LOCKHART	**Local Service**	**Monday thru Friday**	**8:00a to 4:30p**		**$2.00**	**$1.00**
	To: Austin	**On the Interurban Coach ***	Mon, Wed. and Fri.		$6.00 All Day Pass	
	To: San Marcos	Monday, Wednesday & Friday	8:00a & 2:00p	12:00a & 3:00p	$6.00	$3.00
	To: Luling	Tuesday & Thursday	9:00a	1:00p	$4.00	$3.00
LULING	**Local Service**	**Monday thru Friday**	**8:00a to 4:30p**		**$2.00**	**$1.00**
	To: Austin	**On the Interurban Coach ***	Mon, Wed. and Fri.		$6.00 All Day Pass	
	To: Lockhart	Tuesday & Thursday	8:00a	2:00p	$4.00	$2.00
	To: San Marcos	Thursday	9:00a	12:00p	$6.00	$3.00
	To: Seguin	Wednesday	9:00a	12:00p	$6.00	$3.00
LYTTON SPRINGS	To: Lockhart	2nd & 4th Thursday	8:45a	1:00p	$4.00	$2.00
MARTINDALE	To: Austin	Monday & Wednesday	8:15a	2:00p	$6.00	$3.00
	To: San Marcos	Monday, Wednesday & Friday	9:15a	3:00p	$6.00	$3.00
	To: Lockhart	Wednesday	11:30a	2:00a	$4.00	$2.00
MAXWELL	To: Austin	Tuesday & Thursday	8:30a	2:00p	$6.00	$3.00
	To: San Marcos	Monday, Wednesday & Friday	9:30a	3:00p	$6.00	$3.00
	To: Lockhart	Wednesday	11:30a	2:00p	$4.00	$2.00
McMAHAN	To: Lockhart	1st and 3rd Monday	8:45a	12:00p	$4.00	$2.00
McNEIL	To: Lockhart	Monday	9:00a	12:00p	$4.00	$2.00
	To: Luling	Friday	9:00a	12:00p	$4.00	$2.00

Service Routes

- Many systems operated them before term was coined, e.g., shopper shuttles
- Requires careful planning
- Service oriented to **specific clientele(s)** (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 a sponsor – grocery stores, big boxes, etc.

- ***Productivity*** - Limited by vehicle capacity



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Flex Routes (Route Deviation)

- Requires fairly low densities, suburban or small town
- Most appropriate for long, low population density routes
- Replaces ADA paratransit, by attempting to perform two functions with one vehicle
- Unfortunately in urban areas and small cities it provides a lower quality service for all

Productivity **-** Vehicle capacity unless route deviation is open to the general public, then it will be lower.



Recap: Think Opportunities

Service Type	***Productivity – with exceptions***
• Countywide Paratransit	• 1-2 trips per hour
• Microtransit	• Up to 6 trips per hour
• Fixed Schedule – County	• 6-12 trips per hour
• Flexible Routes	• Vehicle Capacity
• Service Routes	• Vehicle Capacity
• Fixed-Route	• Vehicle Capacity



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Leave No Rider Behind!

There should be an appropriate option for all

Don't let the exception drive the rule

Those that can't use the new service due to a disability or other special need will have another option:

- Microtransit, taxis, TNCs, volunteers can all provide service for those with special needs
- Safe and accessible



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Transit Service Planning

When was the last time your services were evaluated and assessed?

- Route performance reviewed and analyzed. Often paratransit origins and destinations show a pattern
- Route structure and service hours evaluated
- Service area needs reviewed
- Recommendations developed to meet new needs, new services/technology and changing demographics
- Methodology in place for ongoing performance evaluation



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Understand Your Service Area

Get out in the community and drive around

- Get very familiar with the service area
- Understand your transit attributes

Determine Population Density

Identify Transit Dependent Populations

Major Destinations

Determine most appropriate and productive service designs



Don't drive like him!



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The Bus Stop: Transit's Front Door

First Impressions

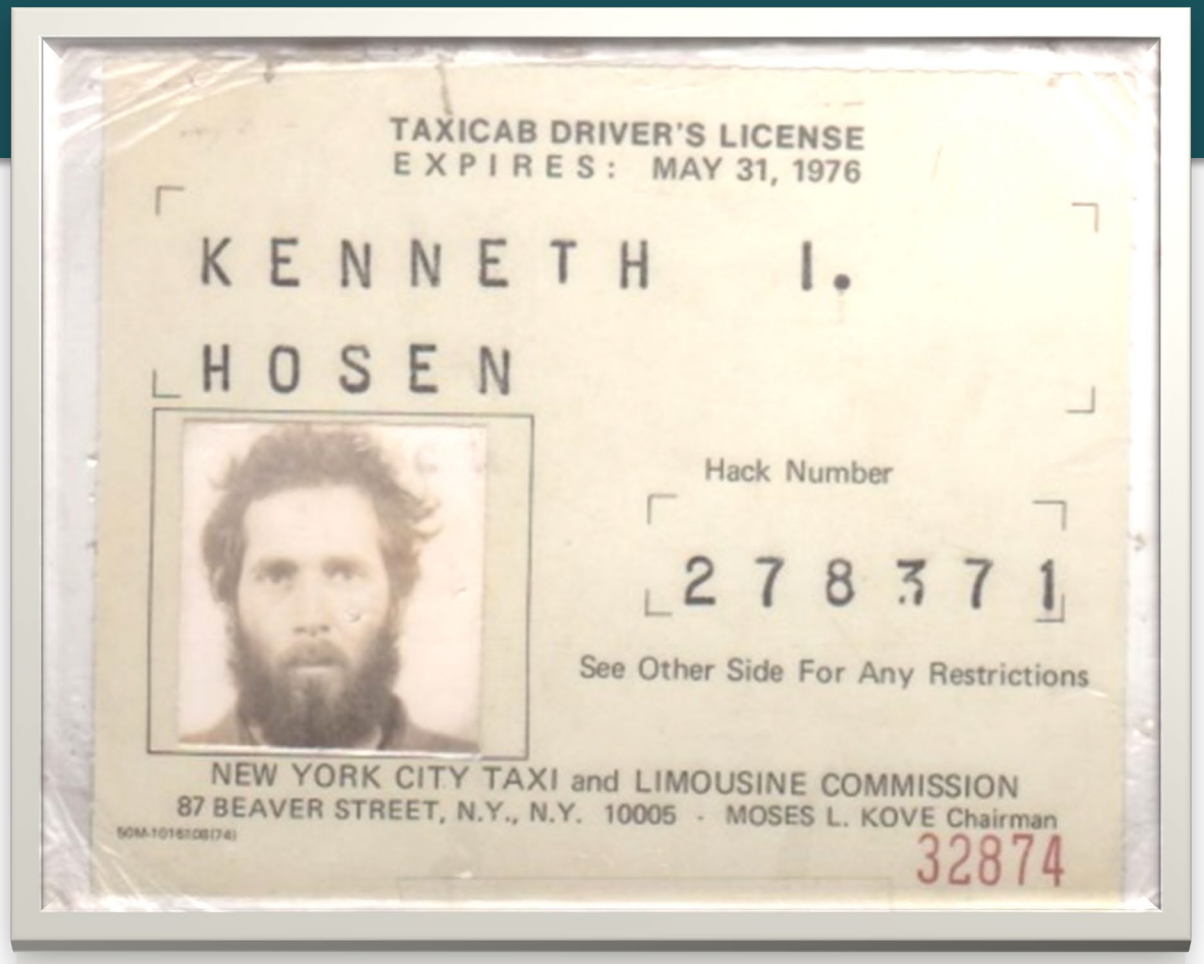
If the bus stop or pathway is intimidating, unsafe, hidden, unlit or inaccessible then how can we expect people to use transit?

Every Bus Rider is a Pedestrian!



Every Bus Rider is a Pedestrian!





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KFH Group Inc.

National RTAP Planning Related Resources

Transit Manager's Toolkit

- Planning and Evaluation Section

Technical Briefs

- Getting Started: Creating a Vision and Strategy for Community Transit
- Developing, Designing & Delivering Community Transportation Services
- Advocating for Your Transit System
- What Agencies Need to Inform the Public About

Resource Library - search for "planning" for outside resources including:

- *TCRP Report 140: A Guide for Planning and Operating Flexible Public Transportation Services* – Transportation Research Board
- *Best Practices in Transit Service Planning* – National Center for Transit Research
- *Inclusive Transit Planning Toolkit* – Administration for Community Living
- *Performance Planning for Rural Planning Organizations* – Texas A&M Transportation Institute

Upcoming National RTAP Events

Transportation Management Association (TMA) Webinar

September 22, 3:00-4:30 PM ET

Session will outline the first steps, the community assessment process, and how TMAs can improve rural job access.

Register: www.nationalrtap.org/webinars.

Rural and Intercity Bus Transportation (RIBTC) Pre-Conference Workshops

October 19-21, 2021

Free virtual training. Agenda coming soon.

National RTAP Tribal Transit Hybrid Mini-Conference

October 6-7, 2021, Duluth, MN

Topics: GTFS, Human Trafficking, Alternate Federal Funding, Procurement, Managing Emergencies, TAM, and Strategic Planning.

Scholarships available for tribes. Virtual attendance free of charge.

For conference details and registration: https://www.nationalrtap.org/News/Conference#Conference2021.

TACL: The Transportation Technical Assistance Coordination Library



http://transportation-tacl.org

Upcoming Twitter Chat:
Let's TACL Coordination
October 20, 2021, 2:00-3:00 PM ET
RSVP to info@nationalrtap.org

The Transportation Technical Assistance Coordination Library (TACL) provides a sustainable methodology and platform to access rural and tribal transportation coordination resources across a diverse range of transportation technical assistance centers and the Federal Transit Administration (FTA).

The FTA-funded technical assistance centers participating in this ongoing work with links to their coordination resources are:

- National Aging and Disability Transportation Center (NADTC)
- National Center for Applied Transit Technology (N-CATT)
- National Center for Mobility Management (NCMM)
- National Rural Transit Assistance Program (National RTAP)
- Shared-Use Mobility Center (SUMC)

Thank You!

National Rural Transit Assistance Program

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