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GTHA FARE INTEGRATION STRATEGY

Fare Structure Evaluation- Draft for Discussion

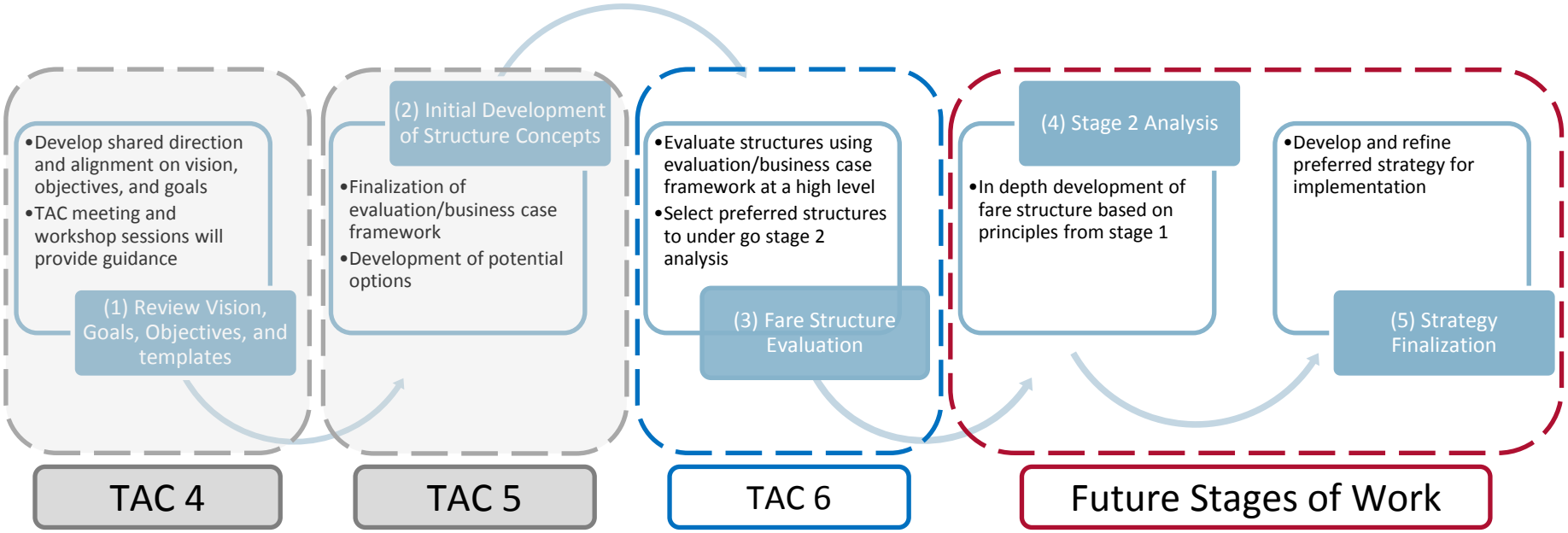
Prepared for Metrolinx

September 9/2015

Overview

1. Review of Vision/Goals/Objectives
2. Structure Development Approach
3. Structure Business Case Evaluation
4. Structure Discussion
5. Conclusions and Phase 2 Recommendations

Update: Where we are



- This discussion is focussed on sharing and discussing the evaluation results

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Vision, Goals, and Objectives

Vision, Goals, and Objectives

- The vision, goals, and objectives were developed in the past TAC meetings
- The following slides are intended as a reminder to guide today's discussion

Vision and Goals

- An overarching vision accompanied by three goals was developed to guide the development and evaluation of options:

Vision	The GTHA Regional Fare Integration Strategy will increase customer mobility and transit ridership while supporting the financial sustainability of GTHA's transit services. This strategy will remove barriers and enable transit in the GTHA to be perceived and experienced as one network composed of multiple systems/service providers.
Simplicity	The fare strategy will simplify customer experience and agency fare management/operations, attracting travellers to transit services throughout the GTHA.
Value	The fare structure will reflect the value of the trip taken and maintain the financial sustainability of transit services.
Consistency	The fare strategy will create a common fare structure with consistent definitions and rules across the GTHA.

Objectives

- Objectives have been set out based on three lenses, in order to develop a comprehensive analysis process for each fare option
- Overlap between objectives in different perspectives is expected as there are similar concerns between each perspective
- Objectives are sorted into an evaluation matrix in attachment 1

Customer Experience

- Represents transit customer perspectives, needs, and concerns

Service Provision

- Represents goals/objectives of transit service providers, including agency operating requirements and policies

GTHA Mobility and Development

- Reflects mobility, growth, and development goals and policies for the GTHA

Customer Objectives

Category	Label	Objective
Simplicity	C1	Enables travellers to perceive the GTHA's various transit options as one network
	C2	Delivers a fare structure that is readily understood by customers
	C3	Convenient and suitable for different trip and traveller types
Value	C4	Creates fares that travellers perceive as reflecting the value for service received
	C5	Promotes equity by fair pricing of trips.
	C6	Provides the customer a user friendly point of purchase experience
Consistency	C7	Allows for common fare concessions and products that meet a range of traveller needs
	C8	Creates standardized fare payment and transaction experience for travellers using one fare medium
	C9	Provides easy fare payment for trips involving multiple services and/or services.

Service Provision Objectives

Category	Label	Objective
Simplicity	S1	Adaptable to changes in agency service provision, operations, and infrastructure
	S2	Has manageable requirements for implementing, maintaining and revising/enhancing the fare strategy over its lifecycle
	S3	Allows for use of fare data for monitoring and service planning
Value	S4	Supports competitive services, ridership development, and service development and promotion policies/preferences/guidelines
	S5	Provides value for money on investment in fare infrastructure/assets and related operating costs.
	S6	Generates revenue required to meet cost recovery plans and minimizes fare underpayment and avoidance
Consistency	S7	Allows service providers to adapt to meet changing customer needs
	S8	Enables seamless transfer between agencies through the implementation and use of common fare media
	S9	Distributes demand efficiently throughout the network and supports the roles of differing service types

GTHA Mobility and Development Objectives

Category	Label	Objective
Simplicity	G1	Provides a flexible fare system that is practical to implement
	G2	Supports transit planning and management across the GTHA including integrated transit services and data collection
	G3	Creates a readily understandable fare system
Value	G4	Supports transit ridership development within services and across the GTHA
	G5	Generates revenue in support of cost recovery plans across the GTHA.
	G6	Support strategic policy for the GTHA, including economic growth, built form, social inclusion, and environmental sustainability.
Consistency	G7	Supports consistent fare media and products across the GTHA
	G8	Implements a common approach to fare management that enables regional planning/investment
	G9	Supports future service developments

Evaluation Framework

- The evaluation framework for the preliminary business case is driven by Metrolinx's four chapter business case approach and 27 project objectives

Strategic Case

- Assesses the alignment of the alternatives with the project's vision/goals as well as policies and plans

Economic Case

- Assesses the economic, social, and environmental impacts of the proposed alternatives, including a cost benefit analysis

Financial Case

- Examines lifecycle costs and revenues of the project to understand its broader financial implications

Deliverability and Operations Case

- Assesses issues and risks associated with project delivery and operations

Using Objectives to Evaluate Structures

Case	Label	Objective
Strategic Case	C1	Enables travellers to perceive the GTHA's various transit options as one network
	S8	Enables seamless transfer between agencies through the implementation and use of common fare media
	C8	Creates standardized fare payment and transaction experience for travellers using one fare medium
	C2	Delivers a fare structure that is legible and readily understood by customers
	C6	Provides the customer a user friendly point of purchase experience
	G3	Creates a readily understandable fare system
	G4	Supports transit ridership development within services and across the GTHA
	C3	Convenient and suitable for different trip and traveller types
	C4	Creates fares that travellers perceive as reflecting the value for service received
	C7	Allows for common fare concessions and products that meet a range of traveller needs
	S9	Distributes demand efficiently throughout the network and supports the roles of differing service types
	S4	Supports competitive service, ridership development, and service promotion policies, preferences, and guidelines
	G9	Supports future service developments
Financial Case	G5	Generates revenue in support of cost recovery plans across the GTHA.
	S6	Generates revenue required to meet cost recovery plans and minimizes fare underpayment and avoidance
	S5	Provides value for money on investment in fare infrastructure/assets and related operating costs.
Economic Case	G6	Supports strategic policy for the GTHA, including economic growth, built form, social inclusion, and environmental sustainability.
	C5	Promotes equity by fair pricing of trips.
Deliverability and operations case	G1	Provides a flexible fare system that is practical to implement
	S2	Has manageable requirements for implementing, maintaining and revising/enhancing the fare strategy over its lifecycle
	S1	Adaptable to changes in agency service provision, operations, and infrastructure
	S7	Allows service providers to adapt to meet changing customer needs
	S7	Allows service providers to adapt to meet changing customer needs
	G7	Supports consistent fare media and products across the GTHA
	C9	Provides easy fare payment for trips involving multiple services and/or modes.
	G8	Implements a common approach to fare management that enables regional planning/investment
	G2	Supports transit planning and management across the GTHA including integrated transit services and data collection

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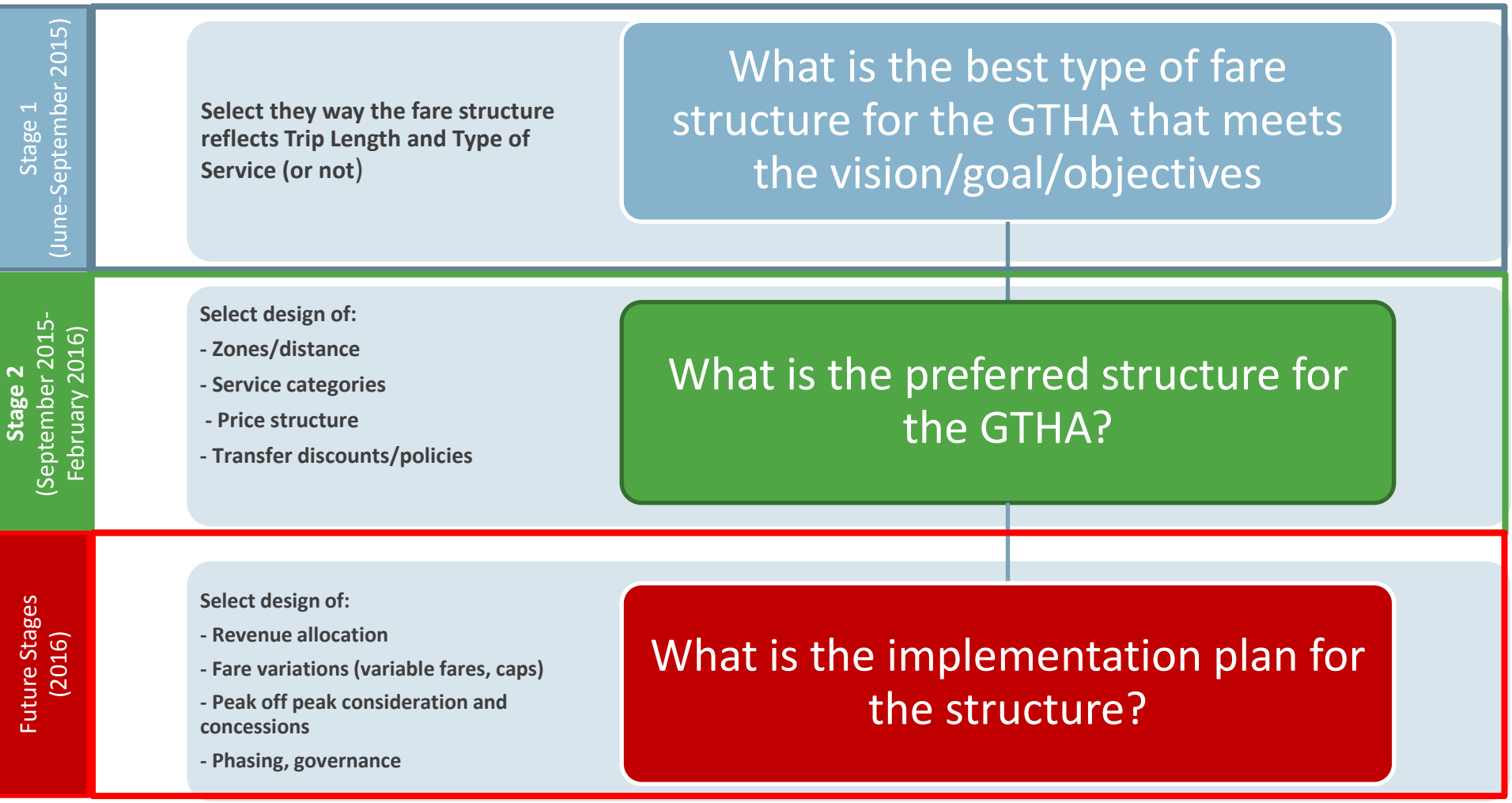
Structure Development Approach

Defining the Spectrum of Fare Structures

- The customer perception of the fit of the transit fare with the value of a trip will drive customer response, ridership, and how the fare structure performs on many of the objectives for evaluation
- Defining the range of options to consider in stage 1 is focused on the ways that the structure reflects the value of the trip to the customer
- The primary drivers of customer perception of value are
  - **Trip length (Distance travelled) and**
  - **Speed/reliability, which is associated with Type of Service**
- The need for transfers will depend on the way that the fare structure responds to trip length and speed/reliability
- Design parameters such as zone size and boundaries, price structures, service categories, etc are addressed in Stage 2

The spectrum of fare structures to be evaluated in Stage 1 is defined based on how they respond to Trip Length and Type of Service

Fare Structure Development: multiple stages



Stage 1 Option Development: Goals and Objectives

- Stage 1 evaluates, and provides the business case analysis for, the spectrum of Fare Structures based on the project Goals and supporting Objectives (slides 8, 9, and 10)

Value:

- Does the fare structure reflect the speed and length of the trip taken and maintain the financial sustainability of transit services.?

Simplicity:

- Does the fare structure simplify customer experience and agency fare management/operations?

Consistency:

- Does the fare structure have a common fare structure and consistent definition and rules across the GTHA?

Stage 1 Considerations: How is a fare structure defined?

Primary Fare Structure Considerations

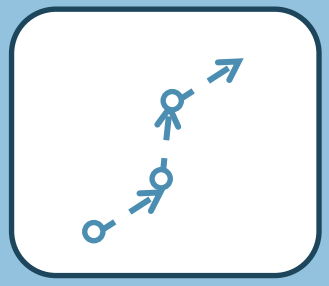
Value of Service Used

Each trip has value based on the type of service used by customers

Value by Trip Length

Each trip has value based on the distance travelled by customers

Secondary Fare Structure Considerations



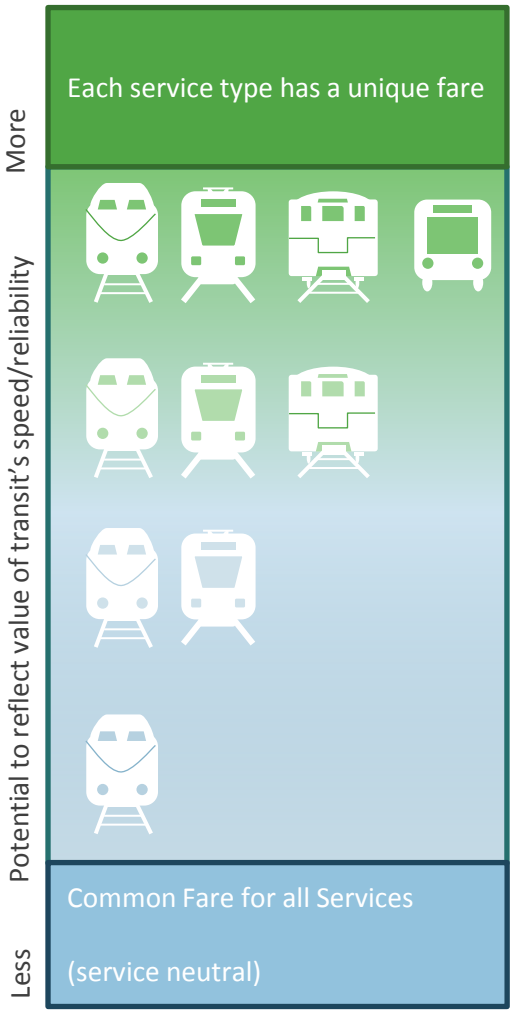
Impact of Transfers

Transfers may impact fares, and can affect the perceived quality of a trip. The requirement for transfer costs depends on how trip length and service type are treated in the structure.

Structure Option Scoping: Stage 1 Design Process

	Considerations	Component Options
How is the trip value by service handled?	Speed/reliability are associated with the service type used.	Can have one structure applied to all services, be varied by service type, or fare structure for each service
How is trip value by length handled?	Fares reflect the distance travelled.	Continuum of options from flat fare across GTHA, to zones, to distance based fares.
How do transfers work within and between services?	Transfers between services or within services may incur an additional fare cost.	A full transfer fare may be charged, or discounts(0-100%) may be applied to a transfer fare.

Structure Scoping: Value by Service



Structure Option Scoping: Value by Service

- The current fare structure is a multi service-type system, with separate zone fare structures for local, local express, GO Transit, and UP Express services
- The GTHA Service Structure Study (IBI 2015) recommended a three type service structure, which is used as an example in this study's evaluation

Regional: services that provide long distance (typically >20km) service between municipalities in the GTHA

Rapid Transit: high speed/reliability rapid transit services catering to medium to long distance trips

Local: lower speed services catering to shorter trips or connections to higher order transit

Structure Scoping: Value by Trip Length

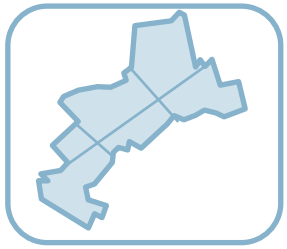
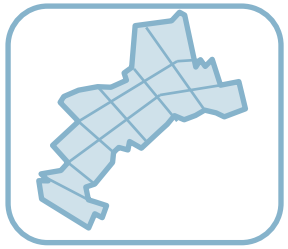
Region Wide Flat Fare

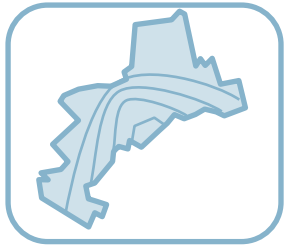
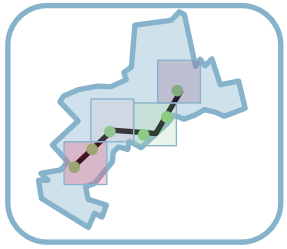
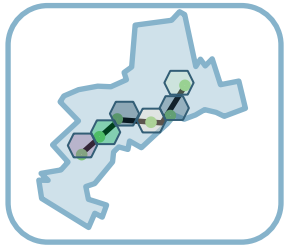
A single flat fare applies to a trip of any length in the GTHA

Grid/Honeycomb

Rings

Service Based Zones

Large Zones — Smaller Zones

Measured Distance

Fare is determined using distance rates and distance travelled

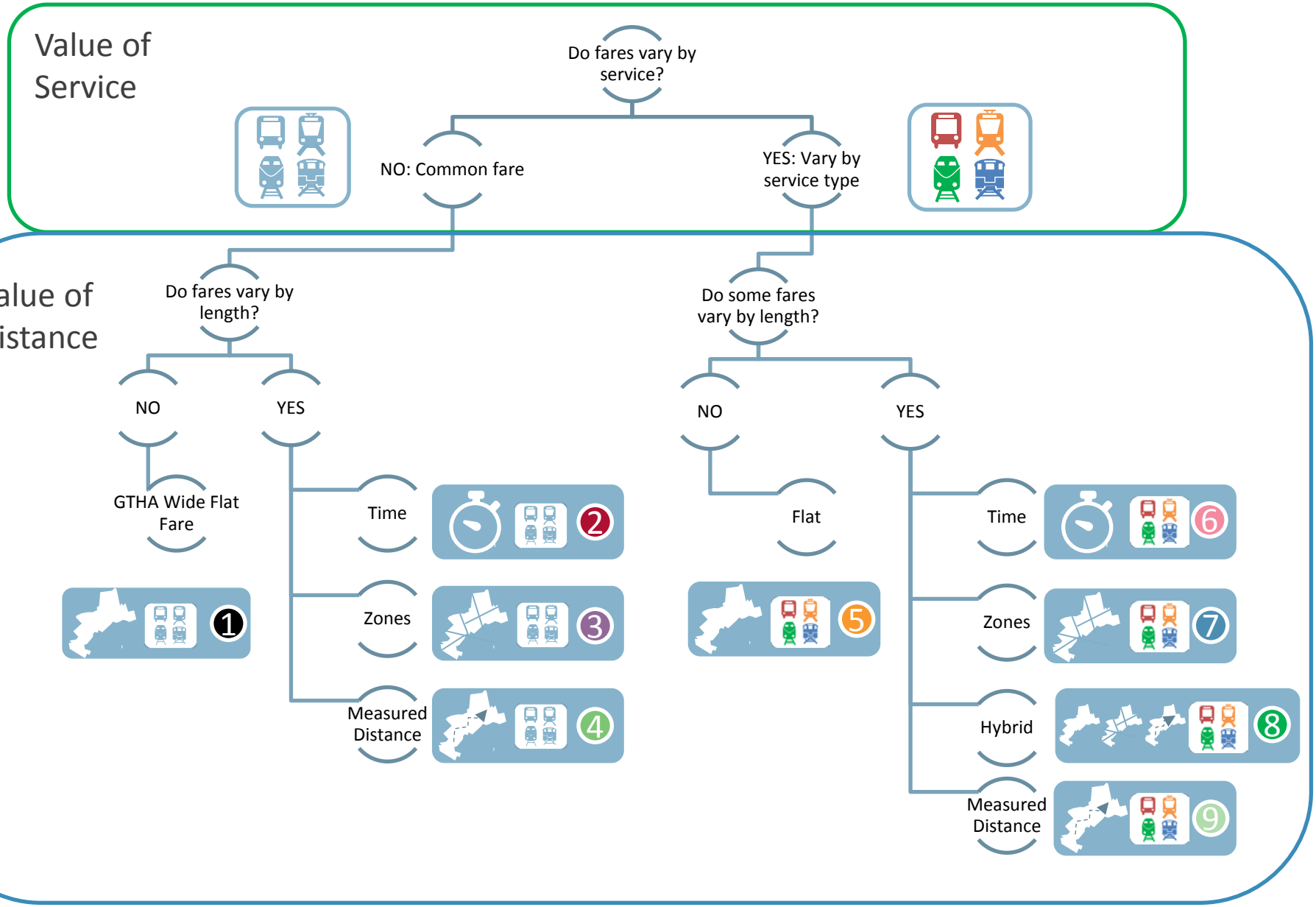
Structure Scoping: Value by Trip Length

- Different approaches to considering trip length (flat, one or multiple zone structures, distance) can be applied depending on service type ("Hybrid")
- Trip length may be considered indirectly through travel time
- Various transfer policies may be used for distance and zonal system and should consider:
  - Transfers between/within services
  - Transfers within a single zone (zone based systems only)

Structure Option Scoping: Impact of Transfers on Value

- Fare structures with different ways of addressing service type and trip length will have different requirements for transfers (e.g. zone systems do not require transfer over distance)
- Transfers may distort trip value by increasing total fare without increasing value of trip received (e.g. transferring between two providers for a short distance trip)
- In Stage 1, transfer impacts associated with different fare discounts (0-100%) are partially analysed (tested) to understand the range of possible evaluation outcomes for each fare structure.
- Additional policies related to transfers will be addressed in Stage 2, possibly including time limits, buffer zones, etc. as appropriate.

Reference Structures



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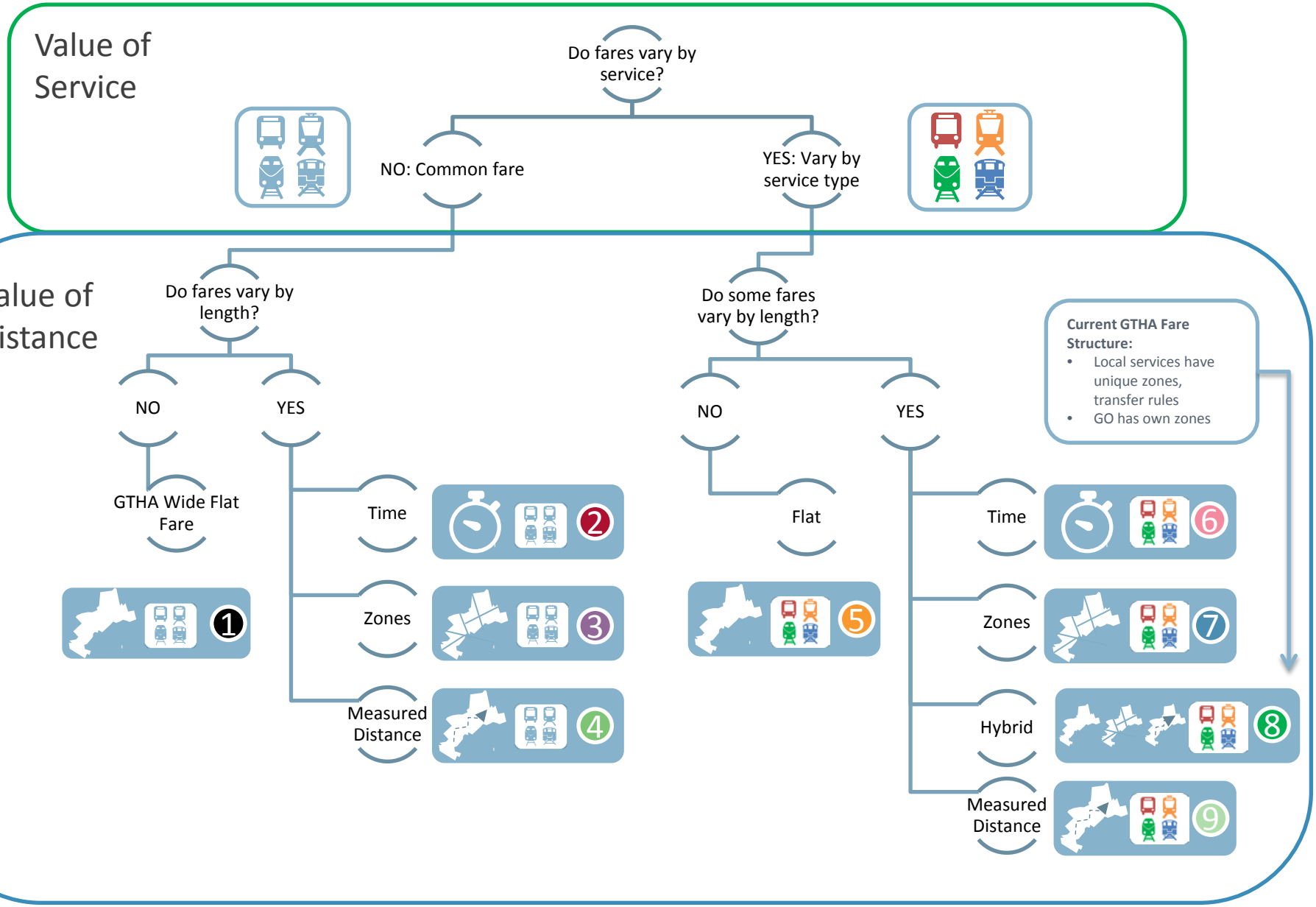


Existing Fare Structure

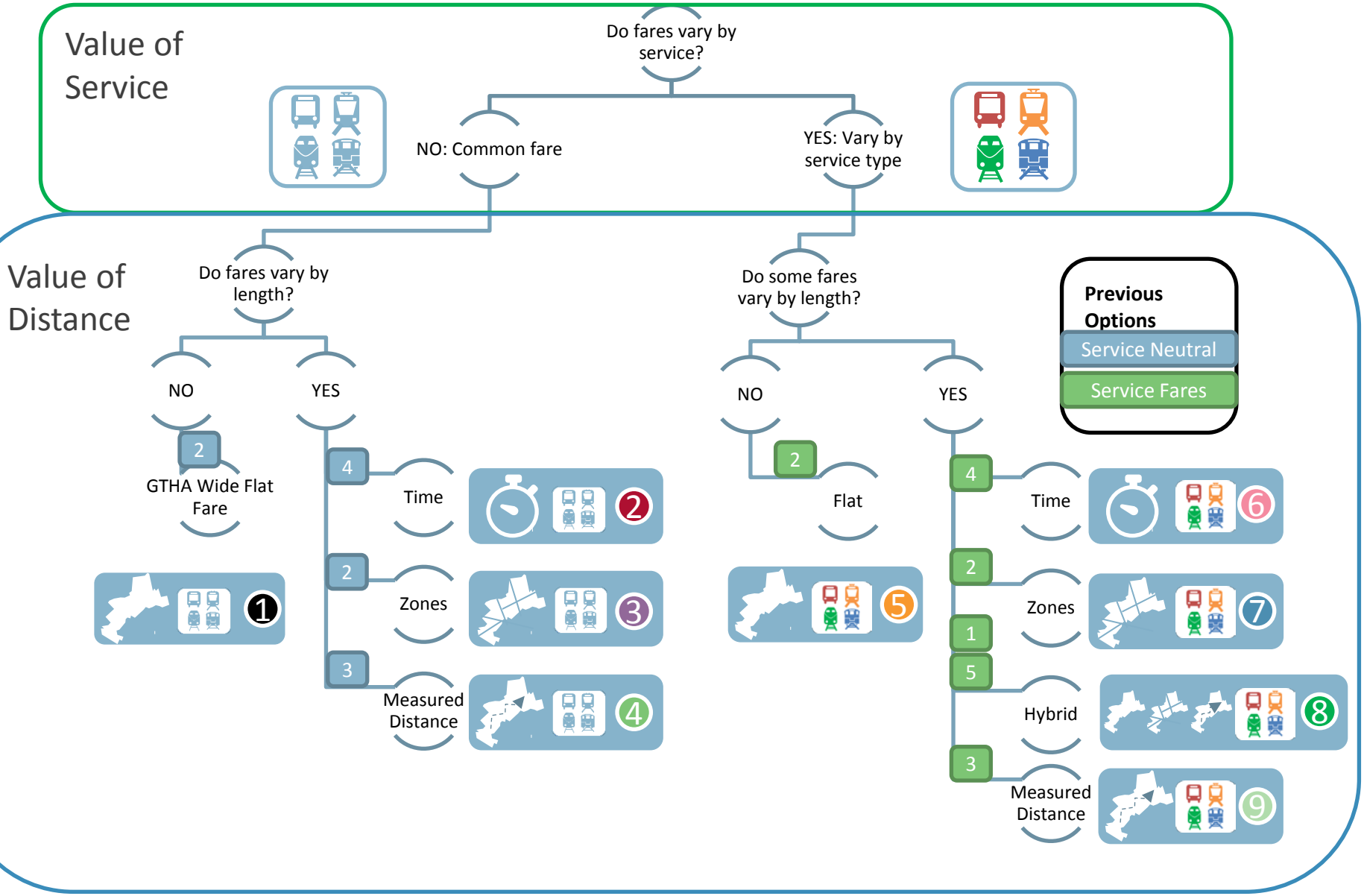
- The existing fare structure can be mapped on service and length value.
- **Service:**
  - Each MSP sets a unique fare for local services
  - Regional services (GO Bus and Rail) have a unique fare setting process
  - Certain services (UP Express, TTC 140, YRT 300 express buses) also have unique fares
  - Transfers between service types have unique rules – e.g. no transfer discount (905 to TTC), 100% discount (905 to 905), GO co-fare, etc.
- **Length:**
  - Each MSP can be considered a Zone, with unique transfer policies between zones (905 free transfer, 905 to TTC no discount)
  - Some MSPs use length fares– example YRT zones
  - Regional services use a unique regional service type zonal/distance system to determine fares

Reference Structures

- Reference Structures are developed to test the full range of potential structures against vision, goals, and objectives

	Reference Structure	Description
Service Neutral		**GTHA Wide Flat Fare** Fares are flat (constant regardless of distance travelled) across the GTHA and do not vary by service.
		**Time** Fares use time spent on transit to determine fare and do not vary by service.
		**Zones** Fares are set by number of zones travelled through.
		**Measured Distance** Fares are set by distance travelled and do not vary by service.
Service Based Fares		**Flat** Fares are flat (constant regardless of distance travelled) across the GTHA and each service may have its own unique flat fare.
		**Time** Fares are set based on time spent using transit. Each service has a unique time rate.
		**Zones** Fares are set by number of zones travelled through. Zones may be common to all services or each service may have unique zones.
		**Hybrid** Fares are set individually by service type. Each service type may have its own mechanism to reflect value by length (flat, zones, or distance).
		**Measured Distance** Fares are set by distance travelled, with each service type having a unique distance rate.

Determining Speed and Length Value: mapping previous concepts



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Structure Business Case Evaluation

Business Case Overview

- An initial business case has been developed for each reference structure incorporating the fare structure objectives
- The business case evaluation process uses the evidence developed during the analysis of each fare structure
- The business case process clarifies the performance of each option as a basis for recommendations on how each option should be considered in stage 2

Business Case Process

- For each reference structure a number of scenarios were developed and evaluated quantitatively with the EAIS elasticity model. These scenarios have been used as a reference to understand the range of impacts on **ridership, average fare, revenue, and vehicle kms travelled for reference markets**.
- The scenarios development was partially restricted to the capability of the existing model to test certain structures and assumptions.

Business Case Process

- The scenarios have been modelled for revenue neutrality while only changing one price variable in order to make them comparable.
- The quantitative impacts are only representative of revenue neutral scenarios, regardless of service cost implications. There is also inherent challenges when estimating large changes in fares, which is particularly important for understanding the distance- base scenario
- Initial Business Case will be finalized upon:
  - Finalization of modelling
  - Implementation cost information
  - Operation cost estimates

Business Case Evaluation: Quantitative Assessment

- The Fare Elasticity Model was used to quantify, where possible, the impact of each structure in the following key variables for each of the 4 cases
- All tests were done using a revenue neutral scenario

Case	Objective	Variable
Strategic	• Ridership • Value	• Change in ridership • Change in average fare
Economic	• Emissions/Congestion • Equity	• Change in veh-km • Average fare and ridership impacts by market
Financial	• Revenue	• Can revenue neutral be reached? • Change in revenue by market segment
	• Costs	• Change in peak demand by mode • Implementation costs*

** Not an output from the elasticity model*

- Results provide useful input for structure comparison but due to assumptions and structures inherent in the model at this time, should not be used as estimates or projections.

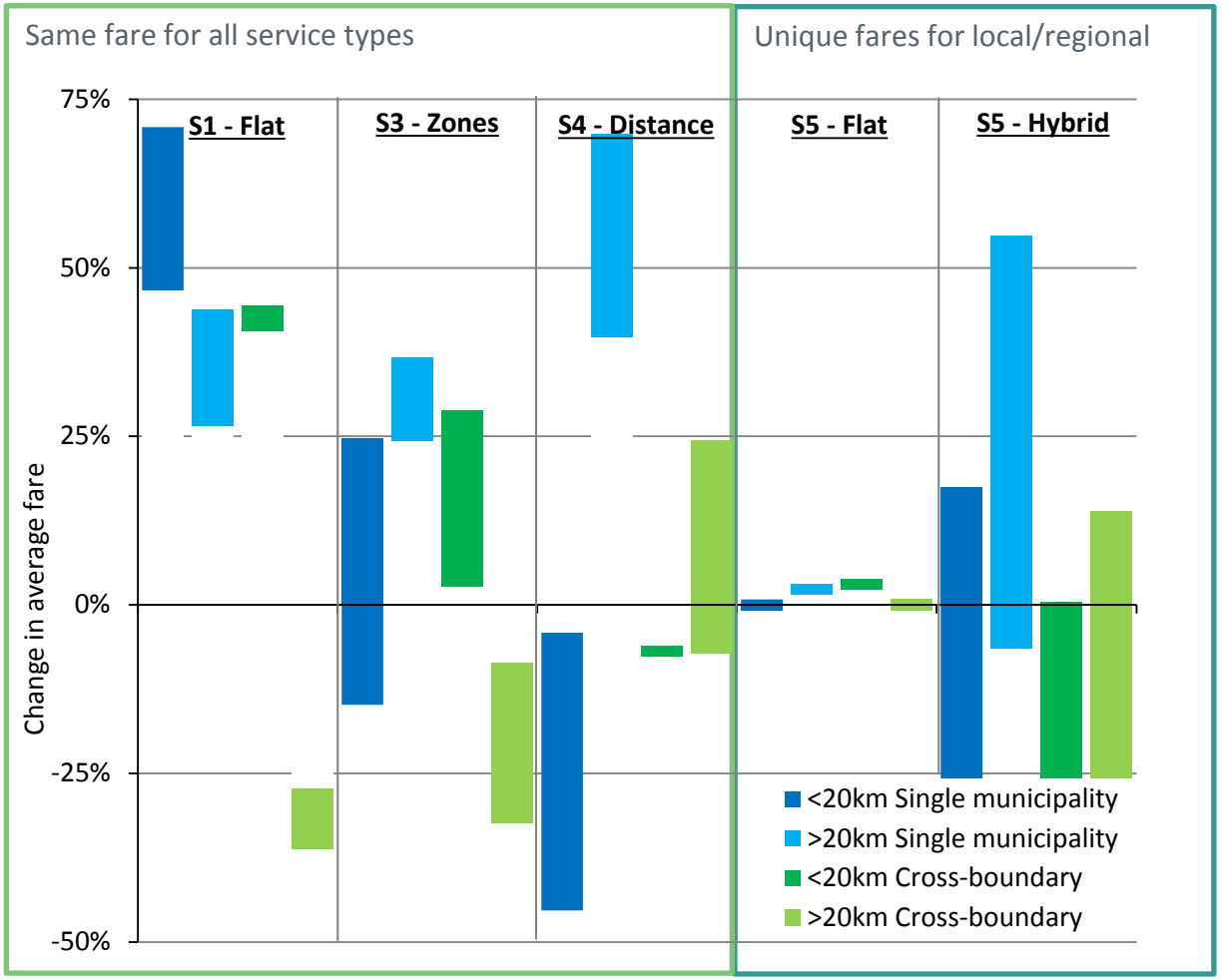
Business Case Evaluation: Modelling

	Reference Structure	Modelled Scenarios
Service Neutral		Two scenarios – with varying discount rates (100% for local, 100% for all services)
		Not modelled
		Five scenarios - honeycomb (3) and ring zones (2) with varying discounts
		Two scenarios - base fare and no base fare
Service Based Fares		One scenario - flat fare for each service type with 100% discount between services
		Not modelled
		Not modelled – extrapolated from 5 and 3
		Six scenarios - Flat local and distance regional, flat local and zone regional
		Not modelled – extrapolated from 4 and 5
		

Market Analysis

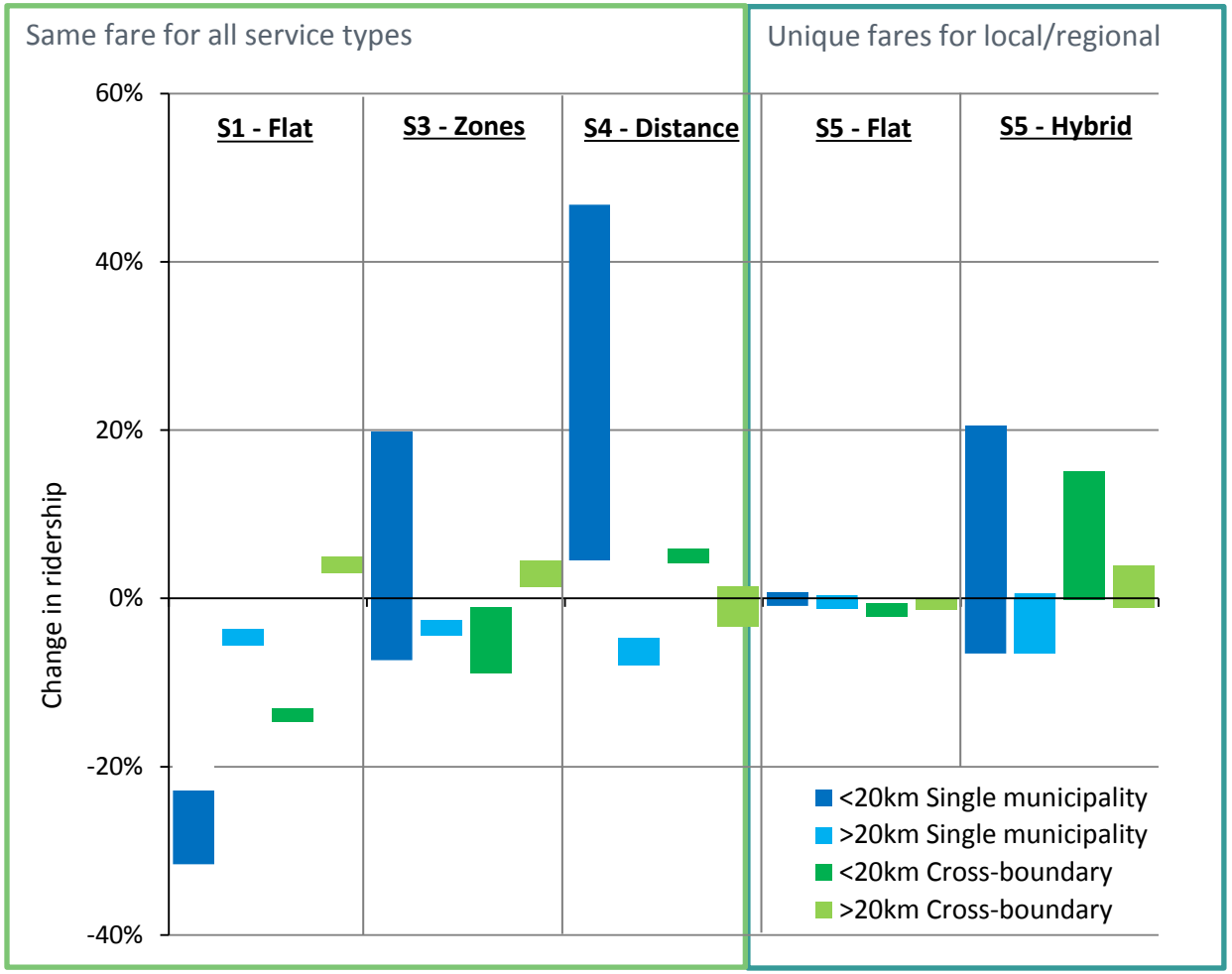
- Modelling results were analyzed based on impacts by average fare and ridership across four markets:
  - **>20km Single municipality**
  - **<20km Single municipality**
  - **>20km Cross Boundary**
  - **<20km Cross Boundary**

Fare Impact by Market



- Short distance fares increase significantly with flat fare and decreases with fare by distance
- Long distance fares increase with fare by distance and decrease with flat fare- ranges also depend on transfer policy
- Hybrid scenarios tested (flat local and fare by distance/zone regional) are similar to status quo- Further options should be tested to understand impacts.

Ridership Impact by Market



- Short distance fares increase significantly with flat fare and decreases with fare by distance
- Long distance fares increase with fare by distance and decrease with flat fare- ranges also depend on transfer policy
- Hybrid scenarios tested (flat local and fare by distance/zone regional) are similar to status quo- Further options should be tested to understand impacts.

Structure	Strategic Case	Financial Case	Economic Case	Deliverability and Operations Case
	• Allows customers to access all services for one rate. • Increase fares, which impacts ridership: 16-23% decrease • Short distance markets are highly impacted by higher fares.	• Revenue neutrality achieved • Decrease in long distance cross boundary revenue of 33% (other markets increase to accommodate) • Minor costs to implement • Additional GO Bus and GO Rail capacity might be required to meet demand	• VKT increase (920,000 to 1,300,000) • All trips are priced same, which leads to inequality based on quality and length.	• Limited fare collection system impacts • Moderate impact on GO services due to increased ridership.
	• Pricing mechanism may reduce transfer barriers, however pricing will be inconsistent and asymmetric, creating major challenges for passengers. • May impact ridership on routes prone to disruption.	• Not modelled; it is expected that neutrality could be obtained, however it would require a complex fare setting process.	• Trips on low travel time reliability routes will be impacted by higher fares. Does not allow for equitable pricing	• Major impacts on fare collection systems.
	• Zone based structure removes 'transfers' between MSPs; zone fees are key determinant of total trip fares • Moderate ridership impacts: 5% decrease to 15% increase • Long distance cross boundary trips see decrease in fare (driven by lower regional rates), all others increase	• Revenue neutrality achieved • Limited revenue impacts, with revenue loss in long distance cross boundary trips (7-29% decrease) • Moderate-major costs to implement • Depending on the scenario Potential for large service level increase for TTC bus	• VKT has range of impacts (increase of 110,000 to decrease of 600,000) • Zone size and use of buffer zones impacts degree of equity.	• Zones will impact service planning/delivery of future routes • Moderate impact on fare collection systems • May use tap on/tap off or will require fare enforcement
	• Removes cross boundary transfer barriers through continuous pricing • Minor to major increase in ridership (3%-32%),depending if initial flat fare is included • Short distance markets see decrease in average fare and increase in ridership	• Revenue neutrality achieved • Decrease in short distance revenue (internal 4-45%, cross-boundary 6-85) other markets increase revenue • Major costs to implement • Could incur in significant additional local operational costs on 905 and TTC buses	• VKT decrease (225,000-875,000) • Inequality based on service type, equity based on length	• Major impact on fare collection systems • All local services vehicles require GPS. Tap on/tap off required for all services. • Local distance fares present a high degree of complexity to operate and implement

	Strategic Case	Financial Case	Economic Case	Deliverability and Operations Case
	• Allows customers to access each services for one rate. • Minor impacts to ridership <1% change	• Revenue neutrality achieved • Higher fares in rapid transit may support cost recovery plans. • Negligible impacts to all markets • Minor costs to implement with limited change in service provision	• Minor increase in VKT (48,000) • All trips within services are priced same, which leads to inequality based on length	• Limited impact on fare collection systems • Transfer policy dictates impacts and risks associated with ridership changing services
	• Pricing mechanism may reduce transfer barriers, however pricing will be inconsistent and asymmetric • May impact ridership on routes prone to disruption.	• Not modelled; it is expected that neutrality could be obtained, however it would require a complex fare setting process.	• Trips on low travel time reliability routes will be impacted by higher fares. • Does not allow for equitable pricing by length	• Major impacts on fare collection systems.
	• Zone based structure removes 'transfers' between MSPs; zone fees are key determinant of total trip fares. This allows for improved and consistent access to 'one network	• Not modelled; it is expected that neutrality could be obtained • Higher fares in rapid transit may support cost recovery plans. • Moderate-major costs to implement	• Provides general equity between trips of equivalent length and service. Zone size influences equity.	• Zones will need to be considered in service planning/delivery of future routes. • Moderate impact on fare collection systems • May use tap on/tap off or will require fare enforcement
	• Option builds upon status quo with refined fare setting mechanisms for each service type • Minor to moderate impacts to ridership -4 to 15% change • If subway is priced as regional, ridership can increase between 6-15%	• Revenue neutrality achieved • Negligible impacts to all markets,. • If subway is priced as regional, important increases in short distance trips (9-21%) that could lead to increased local services required • Moderate-major costs to implement	• Moderate decrease in VKT (2,300-157,000) • Provides general equity between trips of equivalent length and service. If large zones or flat fares are used for a service type, equity may decrease.	• Zones will need to be determined in service planning/delivery of future routes. • Moderate impact on fare collection systems • May use tap on/tap off or will require fare enforcement
	• Removes cross boundary transfer barriers through continuous pricing • Local services present a higher degree of complexity	• Not modelled; it is expected that neutrality could be obtained • Higher fares in rapid transit would meet cost recovery plans • Major costs to implement	• Provides highest equity between trips of similar lengths and service. Base fares and variable rates impact equity	• All local services vehicles require GPS. Tap on/tap off required for all services. • Major impact on fare collection systems

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Structure Discussion

Discussion Overview

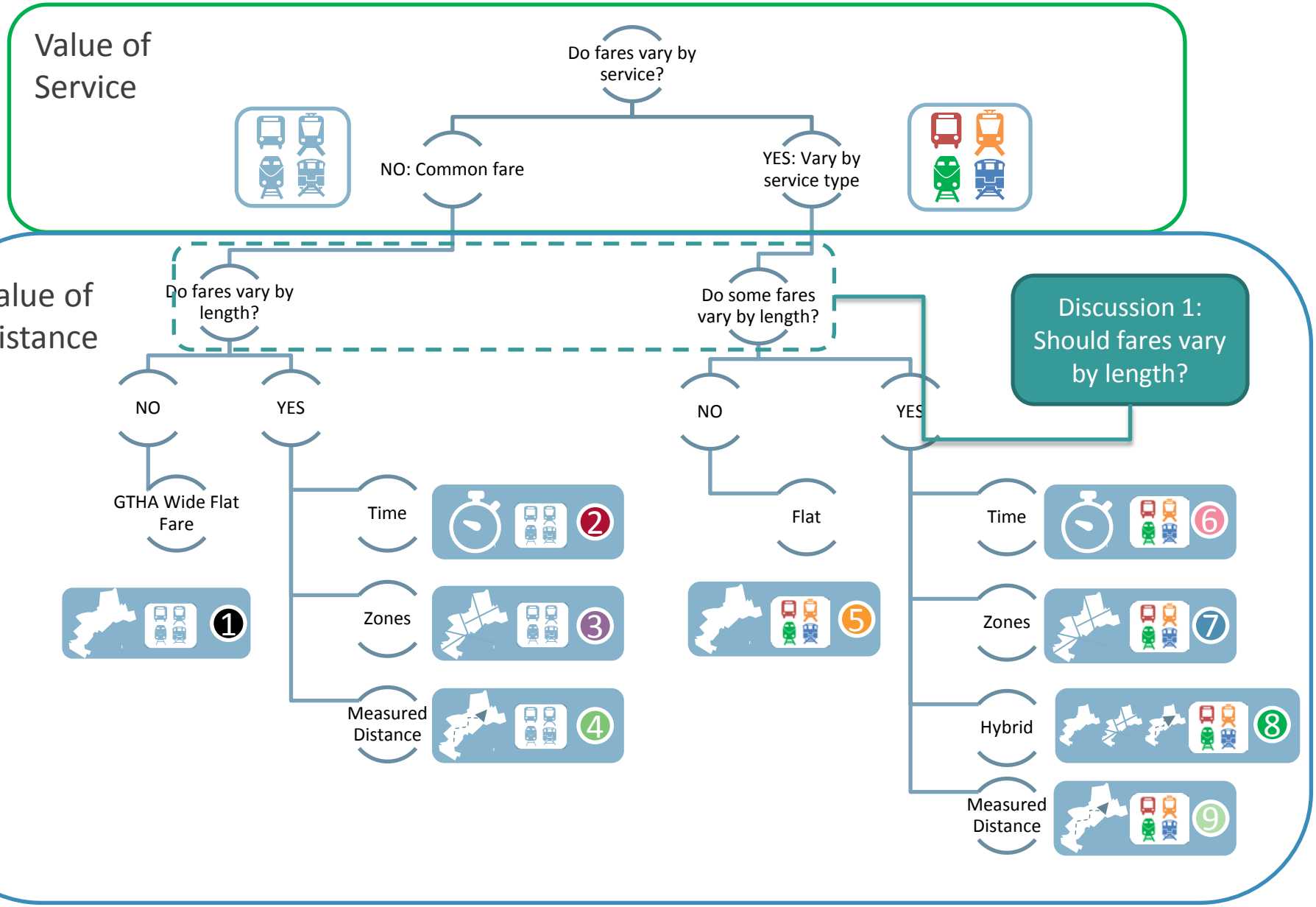
- Each reference structure's business case performance has been analyzed to determine **critical lessons** and **considerations** for stage 2 work
- This analysis is focussed on presenting business case findings based on the two design parameters from stage 1:
  - Value by service type
  - Value by length of trip

Discussion Guide

- Length and service value considerations from the business case have been presented across 3 discussions on: length, service, and structures that use length and service.

- Results are conveyed based on varying degrees of performance:

Discussion 1: Should fares vary by length?



Discussion 1: Should fares vary by length?

Consideration	YES 2 3 4 6 7 8 9	NO 1 5
Strategic Case	▼ Time fares do not represent length value and are inconsistent, which will lead to increased complexity. ▲ Length based pricing may be used to support demand distribution policies ▲ Allows for flexible fares that can enable a variety of pricing strategies ▲ Zones/distance can be used to allow seamless pricing with limited use of transfers ● Length fares may be readily communicated and allow for consistency through new fare	▼ Flat fares do not represent value of length ▼ Flat fares do not support demand distribution policies and may limit adaptation of services to changing needs ▲ May be readily communicated
Financial Case	▲ Impact on revenue can be managed with zone/distance pricing strategies ▼ Length based options require tap on/tap off, or fare evasion prevention, which increases costs ▼ May require new costs above and beyond current Presto implementation	▼ Limited ability to manage revenue impacts. ▲ Limited cost impacts (tap on/tap off not required) ▼ To maintain existing revenue, higher fares are needed which may impact ridership in short distance markets.
Economic Case	▲ Impact on ridership can be managed with zone/distance pricing strategies ▲ Zones/distance can be used to ensure length based equity	▼ Limited ability to manage ridership impacts - model estimates reduction in ridership and increased auto VKT ▼ No ability to ensure length based trip equity
Operations and Deliverability	● Implementation may require significant changes to communications and operations ▲ Provides high quality travel data ▲ Supports future services, fare media, and common fare management ● Adds complexity - tap on tap off or pre purchasing of distance/zones required	● Implementation may require significant changes to communications and operations ▼ Provides limited data ▼ Does not allow flexibility for pricing future services

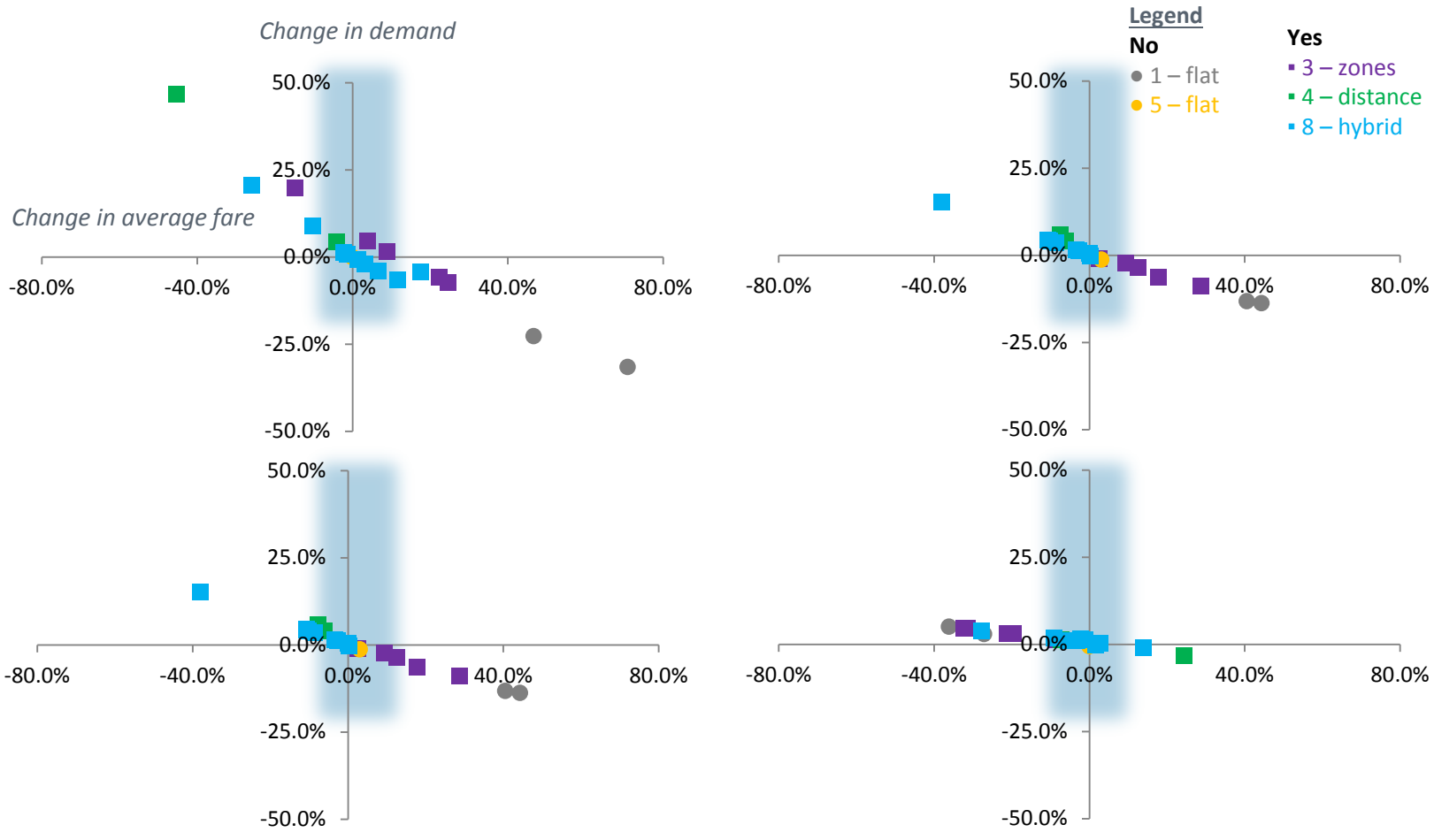
Discussion 1: Should fares vary by length?

INTERNAL TRIPS

CROSS-BOUNDARY

SHORT-DISTANCE

LONG-DISTANCE

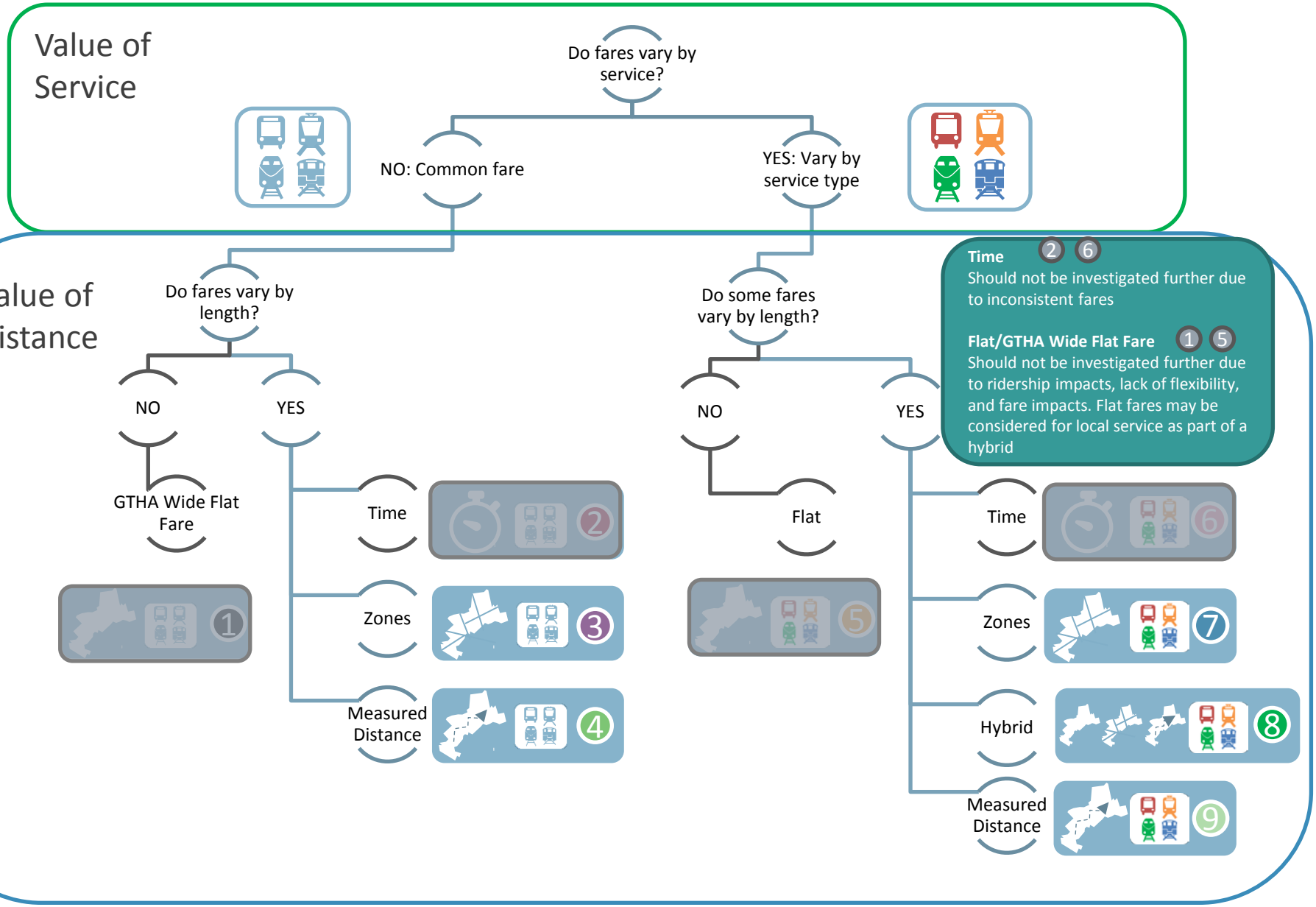


Discussion 1 Summary: Should fares vary by length?

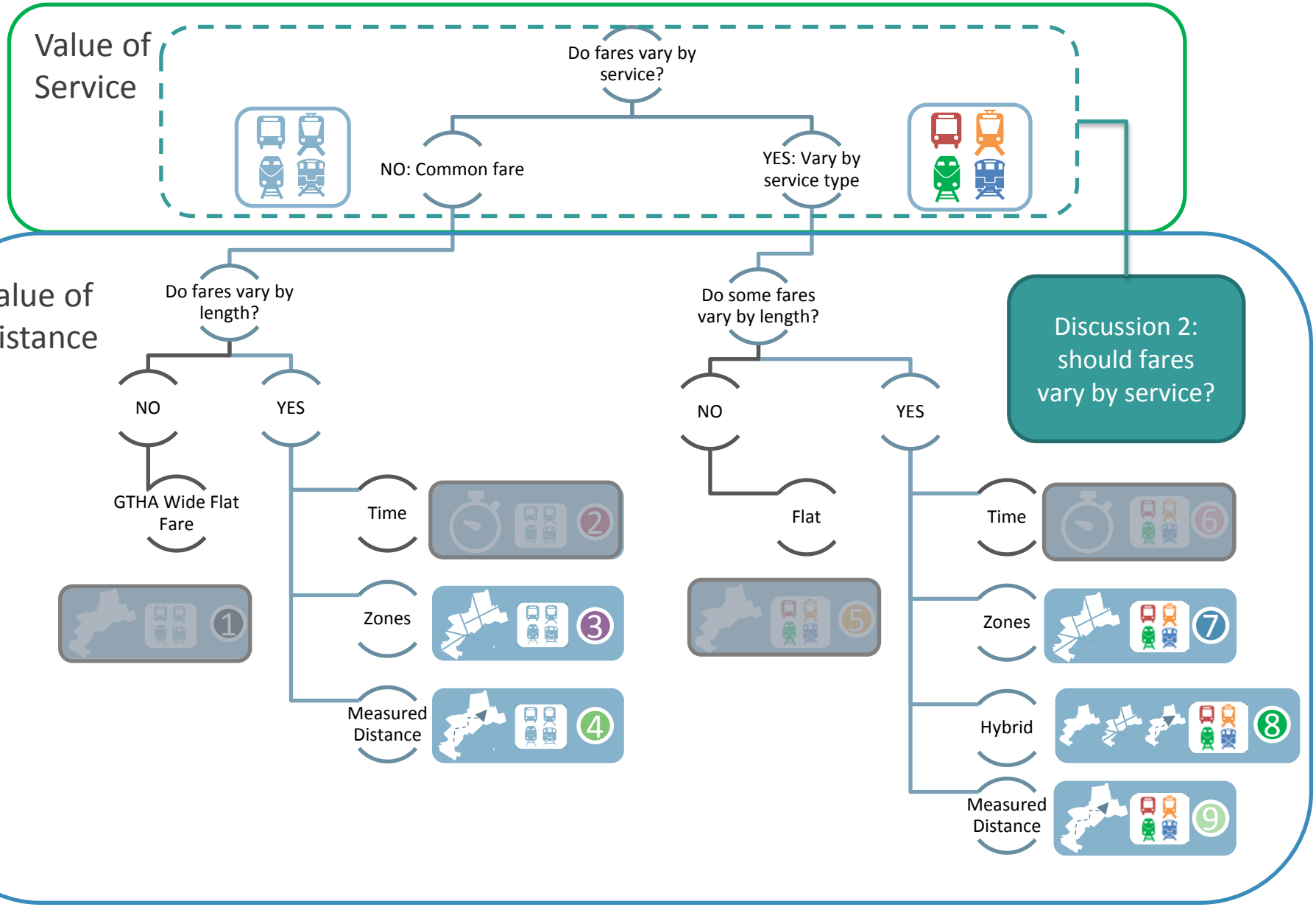
Lessons to carry forward

Yes (2 3 4 6 7 8 9)	No (1 5)
• Distance and zonal structures have an ability to reflect value and provide a flexible fare system for various trip markets • New structures will require a change in messaging and management. Build upon existing distance fares (GO, YRT zones) to develop effective communication • Analyze a spectrum of distance pricing to determine the highest performer in stage 2 • Assess approaches for fare payment and control, including advance purchase, or tap-on/tap-offs • Time based options only approximate length but do not provide a consistent fare • Transfer policies may be used to approximate the benefits of flat fares while still ensuring fares reflect value	• The advantage of flat fares is simplicity. Options should be developed to aim for a similar level of simplicity. • Use tools to improve the management/communication of fare structures to improve simplicity and understandability • Flat fares may be a useful sub-structure as part of a hybrid scenario

Discussion 1: Should fares vary by length?



Discussion 2: should fares vary by service?



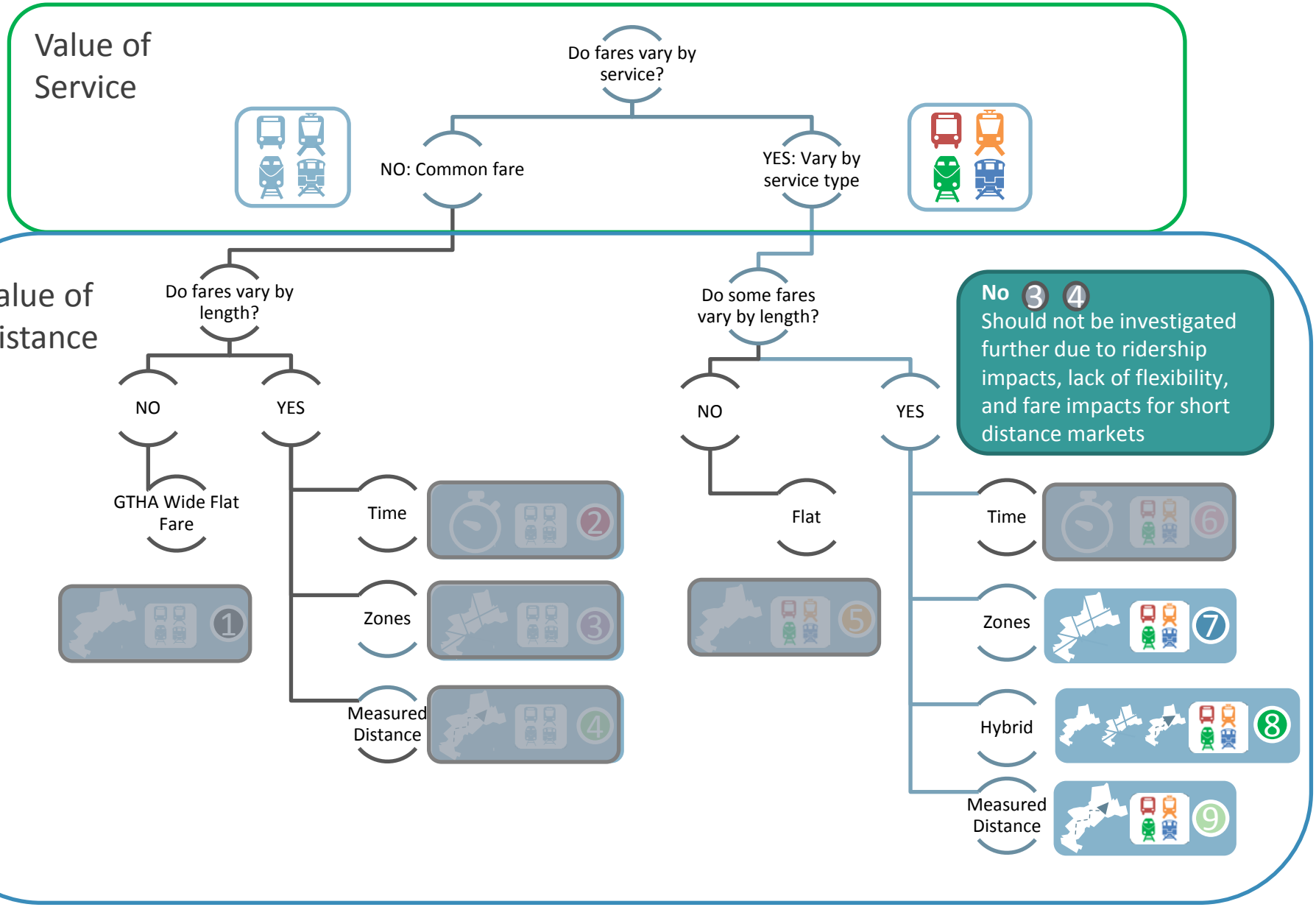
Discussion 2: Should fares vary by service type?

Consideration	YES 5 6 7 8 9	NO 1 2 3 4
Strategic Case	▲ Customer pays for improved speed and reliability ▲ Can readily support demand distribution policies ▲ Readily understandable ▲ Supports future services to have fares in line with service provided	▼ Customer does not pay for improved speed and reliability ▲ Readily understandable ▼ Limits flexibility for future services ▼ Does not support demand distribution policies and may limit adaptation of services to changing needs
Financial Case	▲ Allows for fares to be more strongly aligned with cost of providing service, allowing a variety of revenue capture tools	▼ Limits ability to set fares based on service type – impacting revenue and recovery
Economic Case	▲ Allows for fare system to be more strongly aligned/consistent with trip taken and value received, leading to equitable pricing	▲ Allows for consistency based on length, but not service; limited equity ▼ Raises average fare for local services, which will impact short distance markets. This would reduce average fare for regional services, which may increase ridership
Operations and Deliverability	● May require impact mitigation plan, depending on which services are included and how they are implemented	● Will require services to set up new fare system, which will add complexity to delivery

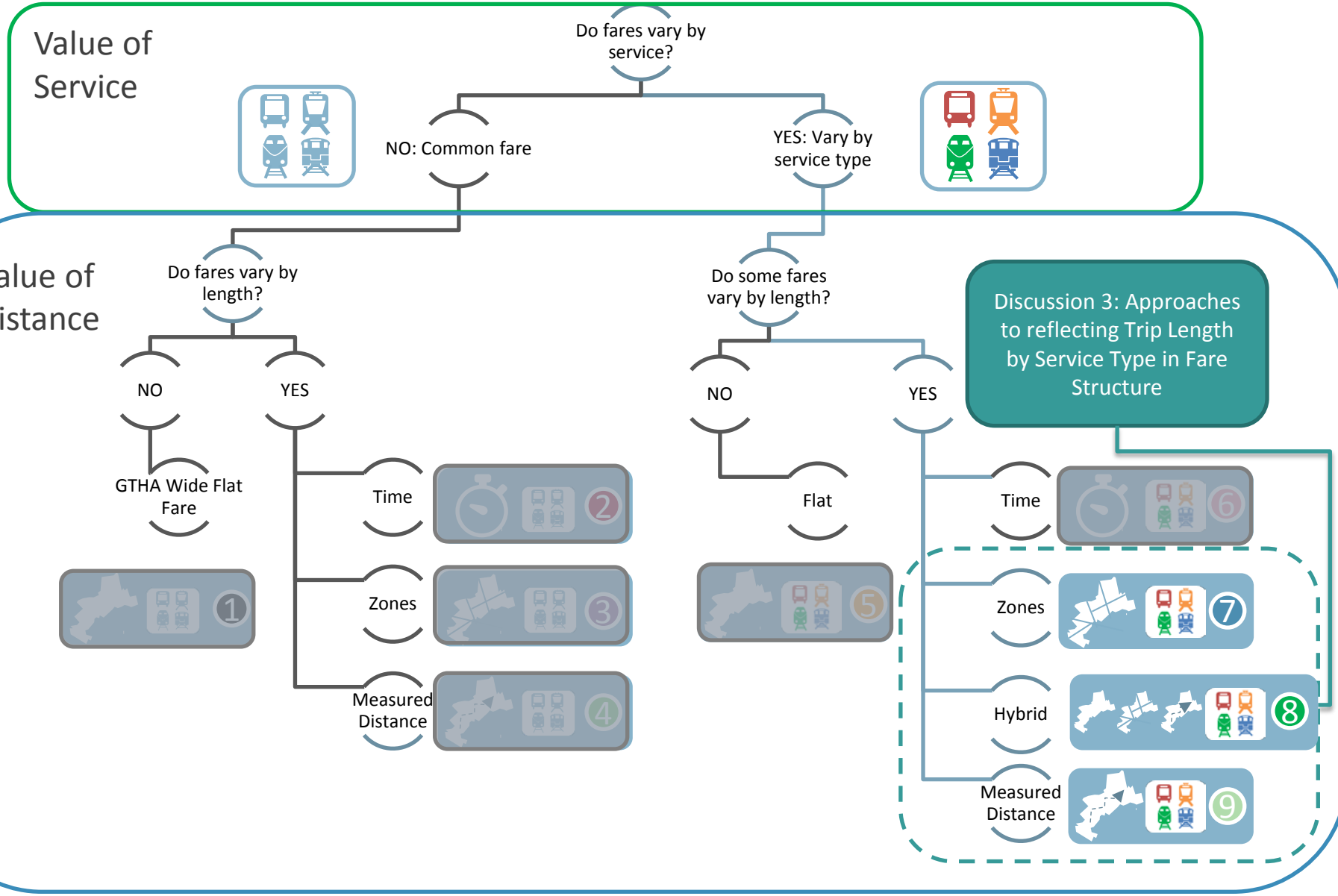
Discussion 2 Summary: Should fares vary by service type?

	Yes 5 6 7 8 9	No 1 2 3 4
Lessons to carry forward	• Ensure that fares by service are managed based on the markets they serve to manage ridership • Explore ideal service to service transfer policies in stage 2 • Revisit the services included in the hierarchy as the regional network evolves • Reflects value of trip speed based on service parameters • Allows each service type to develop fares in line with revenue and ridership goals • May be used to optimize transit ridership across service types	• A service neutral structure limits flexibility of pricing, which has increased impacts on fare paid and ridership in short distance markets • A service neutral structure does not allow fares to reflect value of services consumed

Discussion 2: Should fares vary by service type?



Discussion 3: Approaches to reflecting Trip Length by Service Type in Fare Structure



Discussion 3: Approaches to reflecting Trip Length by Service Type in Fare Structure

- This stage of the discussion is focussed on structures that use service and length considerations
- The aim of this discussion is to determine if there are any service/length combinations that are not appropriate for the GTHA based on goals/objectives of the structure
- This process assesses the performance of each service type against each way of reflecting length in the fare structure

Discussion 3: Approaches to reflecting Trip Length by Service Type in Fare Structure

	Zones (small to large) 7	Distance (per/km rate) 9	Hybrid 8
Local	▲ Smaller zones may be developed based on trip/service patterns. ▲ Large zones may be used to reflect existing municipal boundaries and improve deliverability.	▼ Local services require uniform or near uniform stop spacing. Specialized route information is also a requirement for each route. These preconditions do not exist in the GTHA ▼ Use on-vehicle fare collection, which makes tap-on/tap-off more costly and likely to impact operations.	▲ Service based zones allow services to benefit from their own zone size aligned with the markets they serve. ● Unique service zones may increase complexity of communicating fare structure to customers
Rapid Transit	▲ A range of zones sizes may be used to better reflect value for rapid transit services consumed. ● Zone systems will require fare maps and fare tables on a station to station basis.	▲ Strongest reflection of trip value. ● Distance systems will require fare maps and fare tables on a station to station basis.	
Regional	▲ Zones may be developed based on small zones (approximate distance based) or larger zones (to reflect travel behaviour). ● Zone systems will require fare maps and fare tables on a station to station basis.	▲ Strongest reflection of trip value. ● Distance systems will require fare maps and fare tables on a station to station basis	

▲ **High Performance**
The structure may readily be fit to the GTHA context

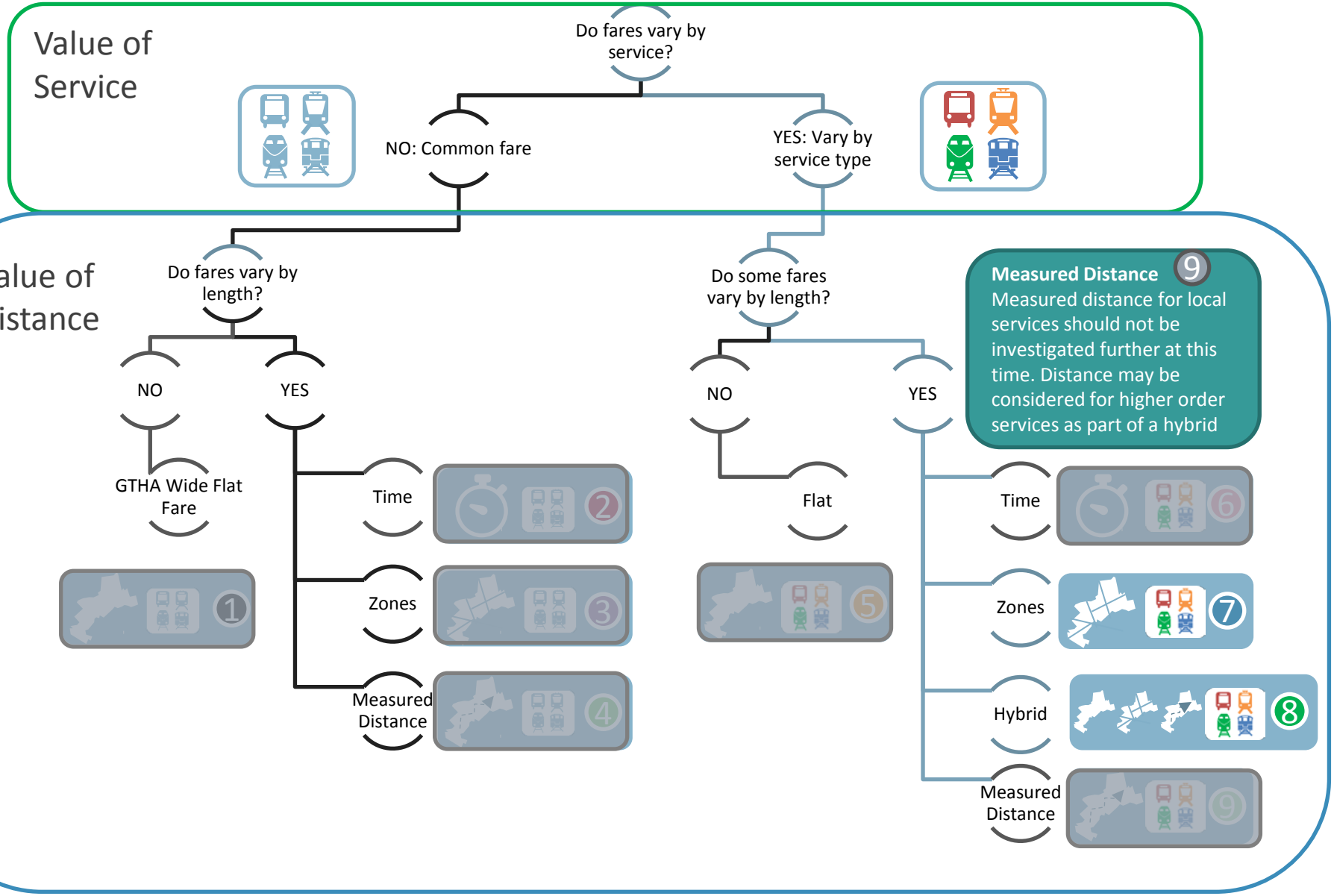
● **Moderate Performance**
The structure must be adapted to match GTHA context

▼ **Poor performance**
The structure has poor fit with the GTHA context and would require significant changes to mitigate challenges.

Discussion 3: Approaches to reflecting Trip Length by Service Type in Fare Structure

	Zones	Measured Distance	Hybrid
Lessons to carry forward	• Clearly communicate zones and use existing boundaries and travel behaviour as a starting point • Consider relationship of zone size to the fare increment per zone to limit need for discounts or buffer zones. • Zones allow a length/service based measure without requiring the full complexity of distance pricing	• Manage the complexity of distance based pricing through effective communication tools • Distance based rates are effective for rapid transit and regional transit; however they add high complexity to local service. Many of the preconditions for local distance fares do not exist in the GTHA.	• A mixture of flat, distance, and zones increases complexity but may lead to a better 'fit' • By combining the strengths of flat, distance and zone structures, while mitigating challenges a hybrid option may perform well for the GTHA.

Discussion 3: Approaches to reflecting Trip Length by Service Type in Fare Structure



Discussion Summary

- Using service neutral fares offer little benefit achieving goals/objectives
- Structures that do not reflect distance travelled offer little benefit in achieving goals and objectives.
- Time-based fares for any specific trip are inconsistent due to variation in service design and operating conditions resulting in higher fares for poorer service.
- Flat fares may be considered as part of a hybrid option for local services
- Distance based pricing for local service may be challenging in the GTHA due to lack of pre-conditions such as uniform stop spacing and GPS on all buses; however, distance based pricing is well suited for regional and rapid transit services
- Service based zones (each service has unique zonal system) or geographic zones (common GTHA wide zonal system) are strongly aligned with objectives and goals
- A hybrid structure is also well aligned with goals/objectives and offers a flexible fare structure

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Conclusions and Recommendations

Business Case Evaluations: Draft Conclusions

- **Service based** structures build on the existing GTHA fare structure and allow more equitable and flexible pricing.

- **Flat fares** have high impacts on ridership with fare increases and ridership decreases for short distance markets, and do not match with the goals and objectives of the study. Flat fares may have a role for local transit.

- **Time fares** have inconsistency and increased complexity to deliver and communicate. They do not match study objectives. Time based principles will be considered as part of transfer policy development in stage 2.

Business Case Evaluations: Draft Conclusions

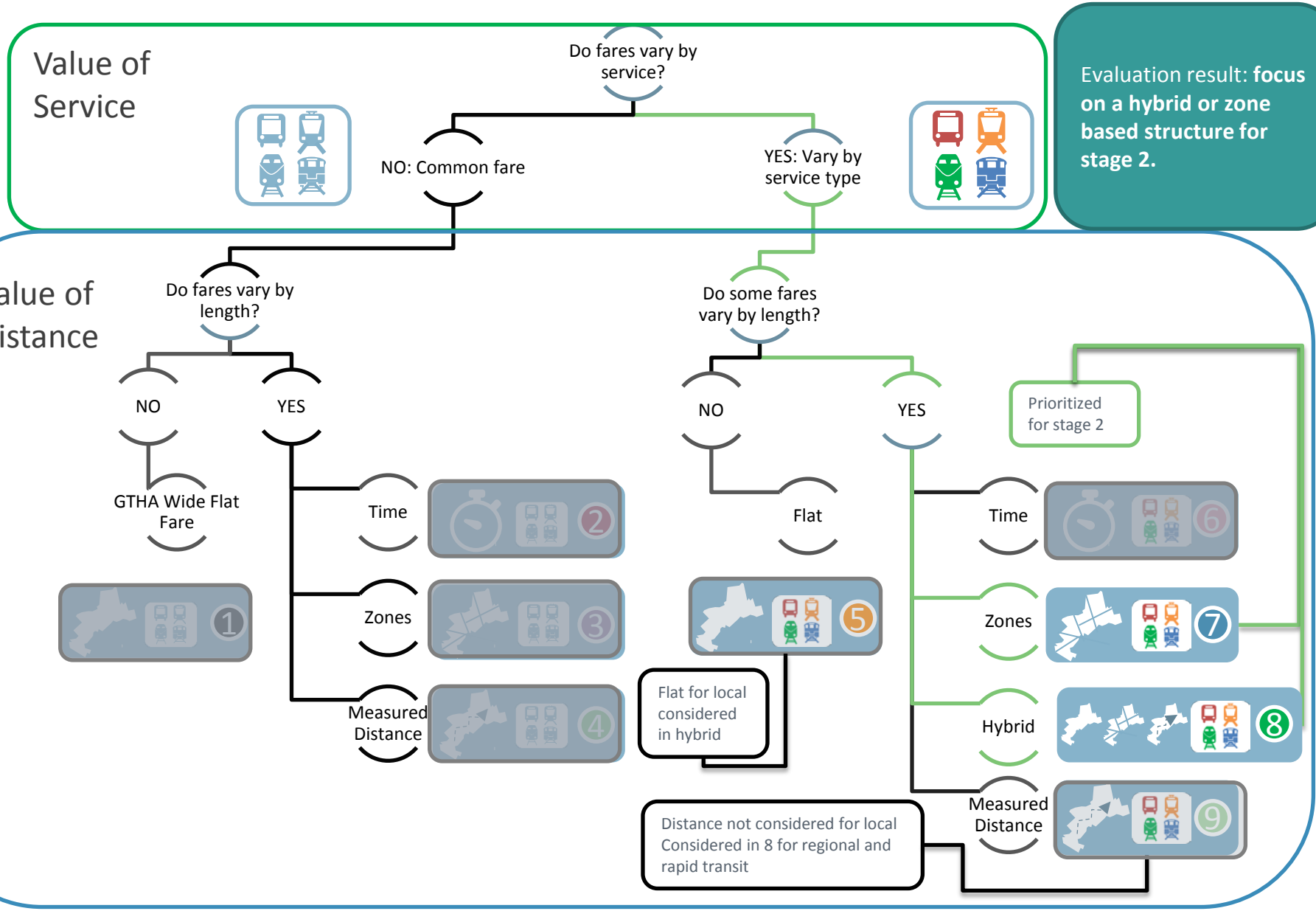
- A **distance based** structure offers strong ridership growth in short distance markets, with minor impacts on long distance markets; however distance based pricing may be challenging for local services. Distance-based fares may have a role for higher order transit.
- **Zone based** structures offer a 'middle way' between distance and flat fares. Zone sizes and design can be varied to achieve policy objectives
- **A hybrid** structure that might include flat (for local), zone, and/or distance (for higher order) structures may best fit the GTHA transit markets and services.

Draft Recommendation: A service-based structure including a combination of flat or zone fare structures for local services, and zone or distance-based fare structures for higher order services should be carried forward for more detailed analysis.

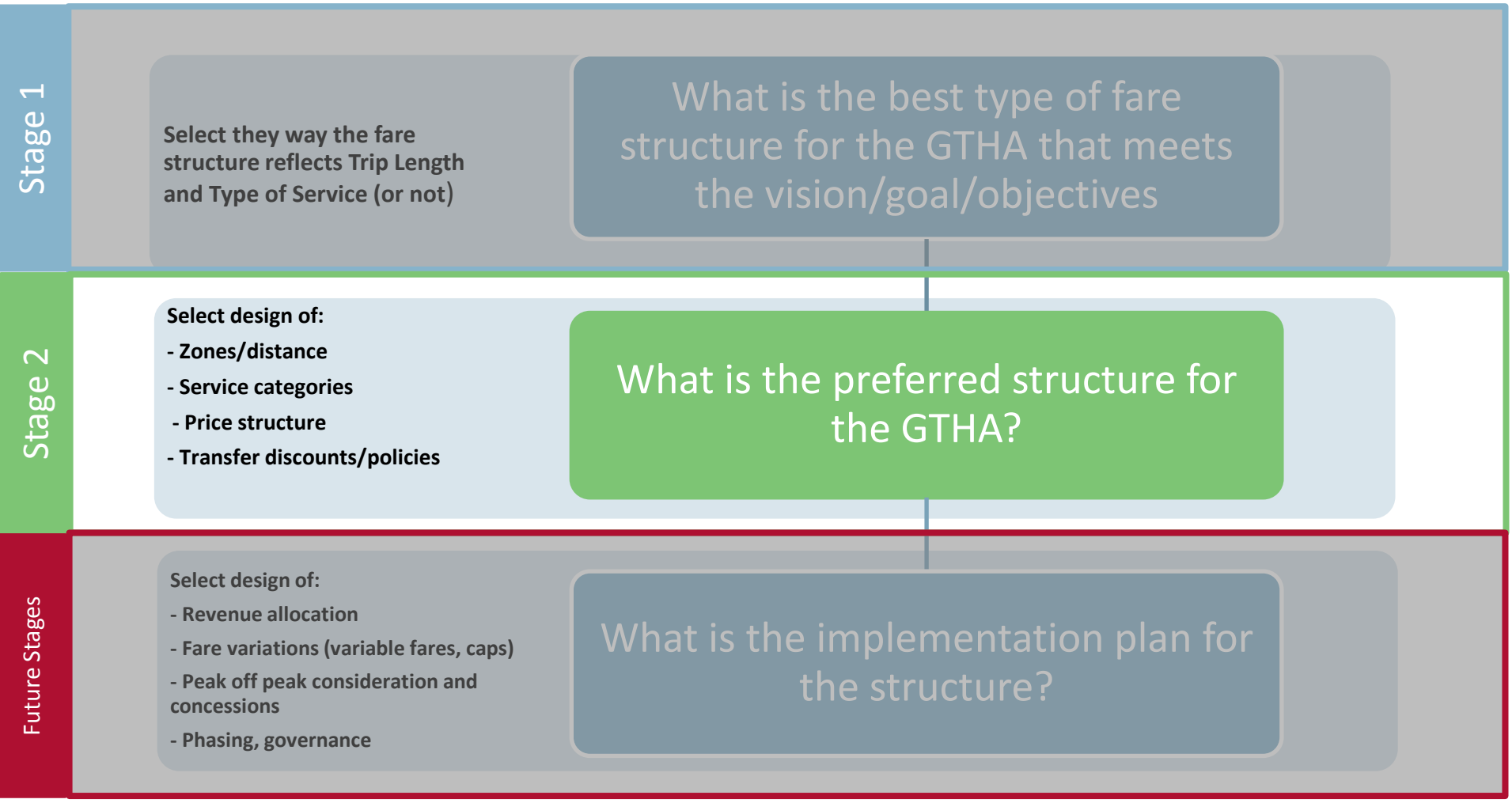
Business Case Evaluation: Draft Conclusions

	Reference Structure	Consider in stage 2?	Evaluation Finding
Service Neutral		No	Limited benefits with large impact on ridership (strategic and economic case)
		No	Does not achieve strategic objectives and has uncertain benefit (strategic case)
		No	Offer benefits to ridership however do not reflect value by service (strategic case)
		No	Offers benefits to ridership however local distance fares present large complexity (strategic and d/o case)
		Conditional no- Considered in 8	Minimal impact with minimal benefit (strategic, economic cases)
Service Specific Fares		No	Does not achieve strategic objectives and has uncertain benefit (strategic case)
		Yes	Offers ability to have fares by service and length with flexibility
		Yes	Offers ability to have fares by service and length with high flexibility
		Conditional no- Considered in 8	Offers highest flexibility however local distance fares present large complexity (strategic and d/o case)

Business Case Evaluations: Draft Conclusions

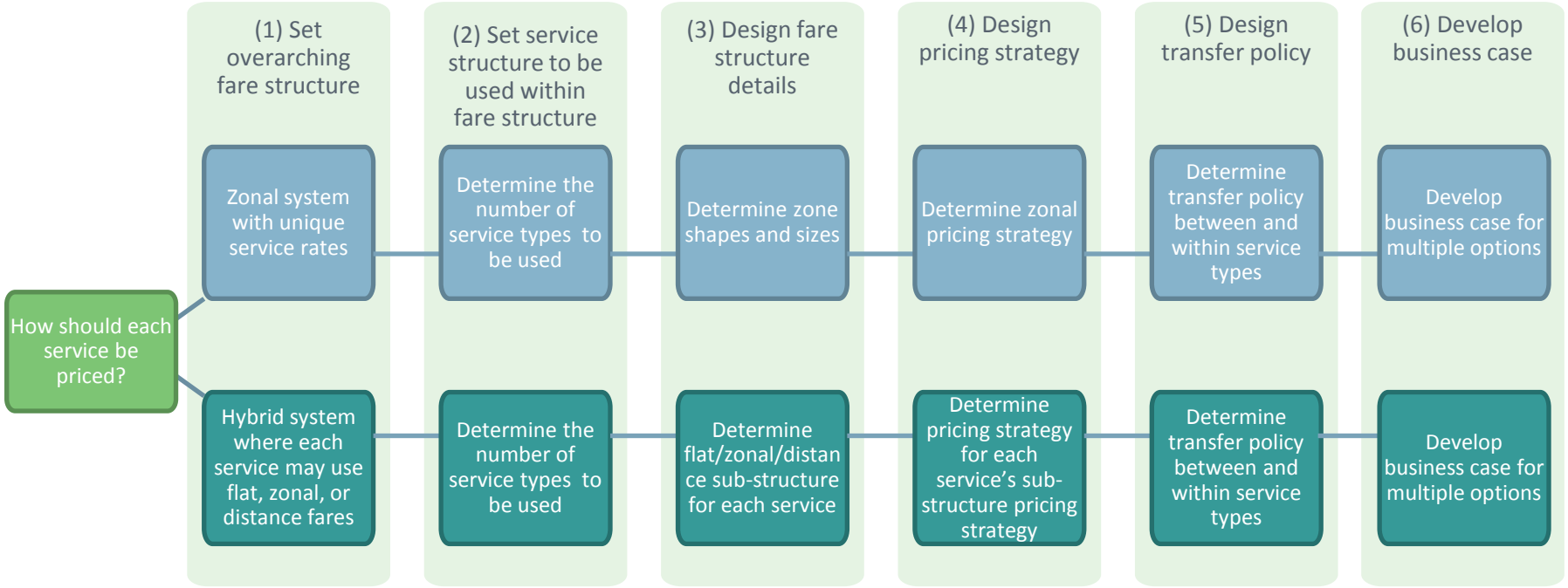


Fare Structure Development: Stage 2



Fare Structure Development: Stage 2

- Use a zone structure of a hybrid (flat, distance, zones) as a starting point to develop a preferred fare structure
- Design process will develop several configurations of each structure type to under go a more detailed business case evaluation:



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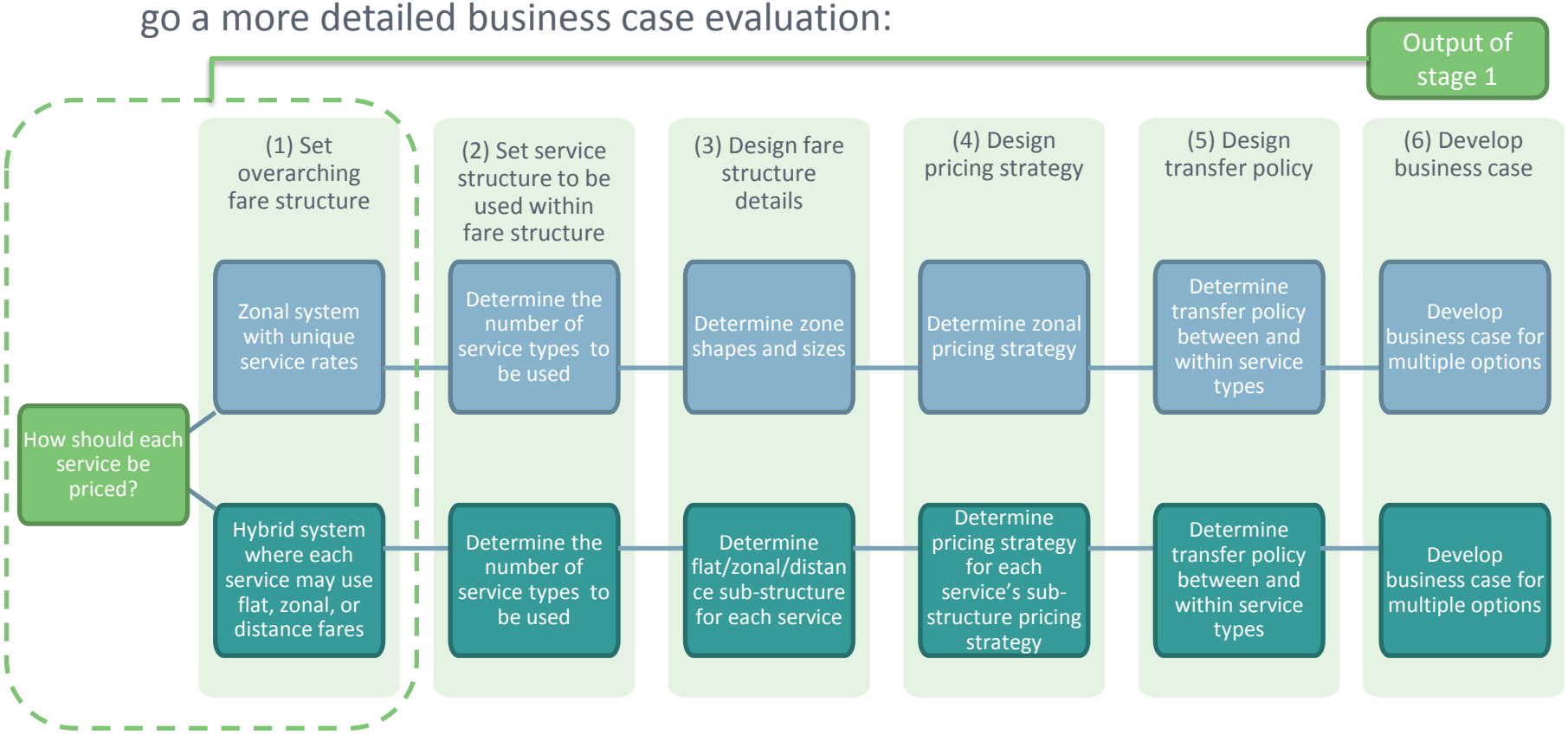

Recommendations for Analysis in Stage 2

Stage 2 will apply the candidate fare structure types to the GTHA, evaluating the options to determine the preferred fare structure based on the identified goals and objectives.

	Variables	Recommendations
Services	• Determine the number of service types and definition of services to be included in each.	• Consider the 3 service type structure recommended by the Service Strategy study as a starting point.
Fare Structures	• Determine preferred fare structure to be applied for each service type • For zones: determine appropriate zone design and sizes; assess the value of buffer zones	• Recommended structures to consider: •Regional: zone or distance based • Local: flat or zone-based • Consider the relationship between zone size and fare increments
Pricing Strategy	• Determine ideal service price structure for each service • Pricing rules by zone, or distance definition • Base or flat fare • Incremental fares for zones or distance • Assess time-of-day pricing to develop travel demand	• Considerations in developing pricing strategy should develop ridership, support equity and revenue policies, position services relative to each other, and optimise system capacity • Off peak pricing to optimize system capacity
Transfers	• Determine transfer requirements between different service types: discounts, transfer time window, etc.	• Consider impact of incremental transfer costs on short-distance trips.

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