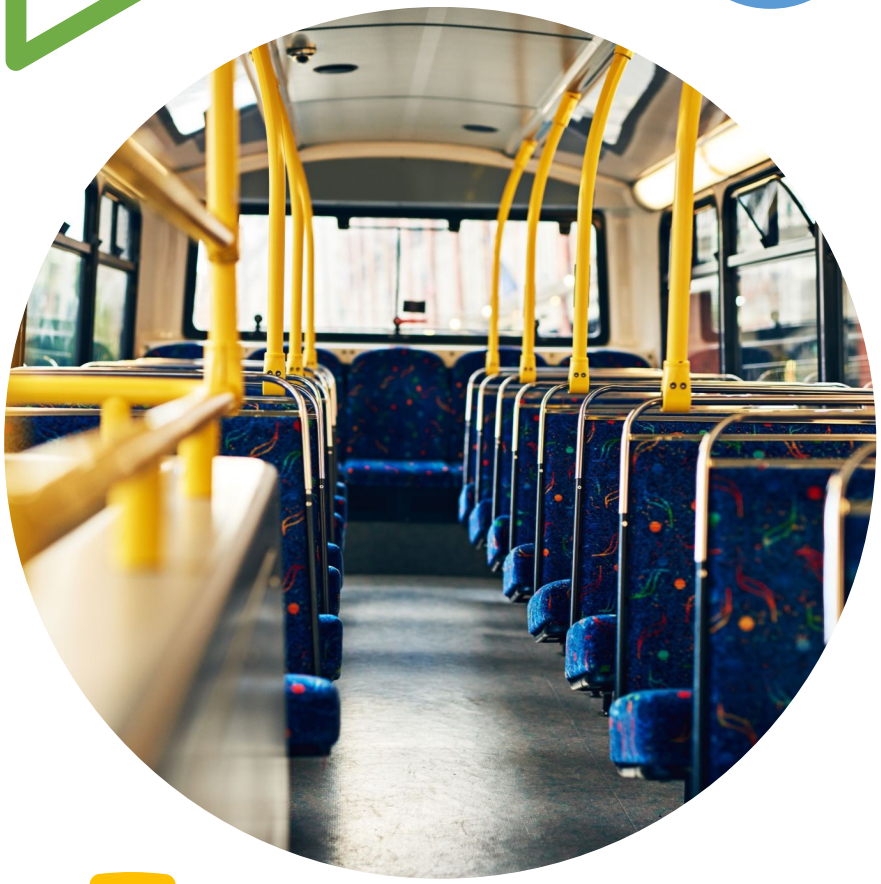
Pupil Transportation

A Road to Options for Students

Dec. 6, 2021

4:00 pm – 5:30 pm



Joe Clark

Experience

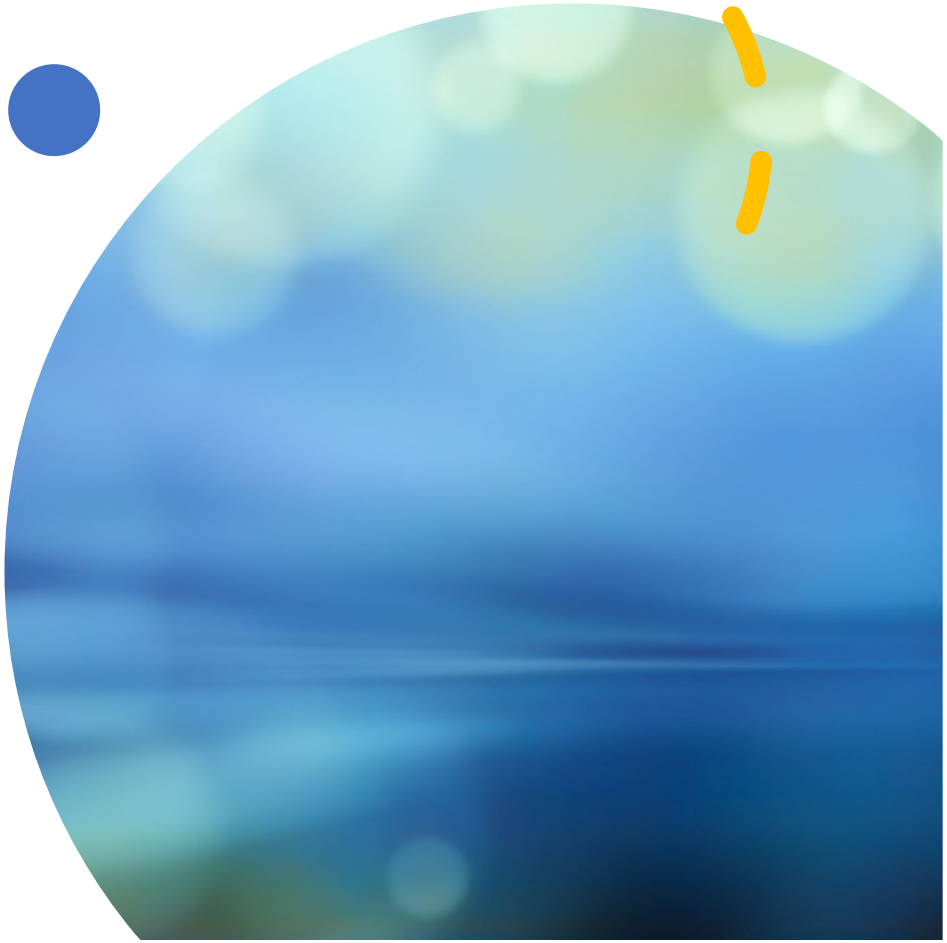
- 1991-1996 – Centralia – Chehalis Pupil Transportation Cooperative
- 1996-2002 – Office of the Superintendent of Public Instruction
- 2002-2019 - MGT Consulting Group
- 2019- Current – Executive Director Twin Transit

Transportation Modeling

- Fleet re-design through innovation and contemporary methodology
- Thought Leader Moving ZEV / Hydrogen
- Working with US Gov, WSDOT, Toyota North America, Kenworth, EPC, BNSF, Hydrogen Alliance to build the Energy Innovation Center.

Areas of Focus

- Pupil Transportation models
- Student Transportation Options
- Fleet Options
- Community Resources
- Funding Approaches
- Contractor vs District Owned
- The Road to Options



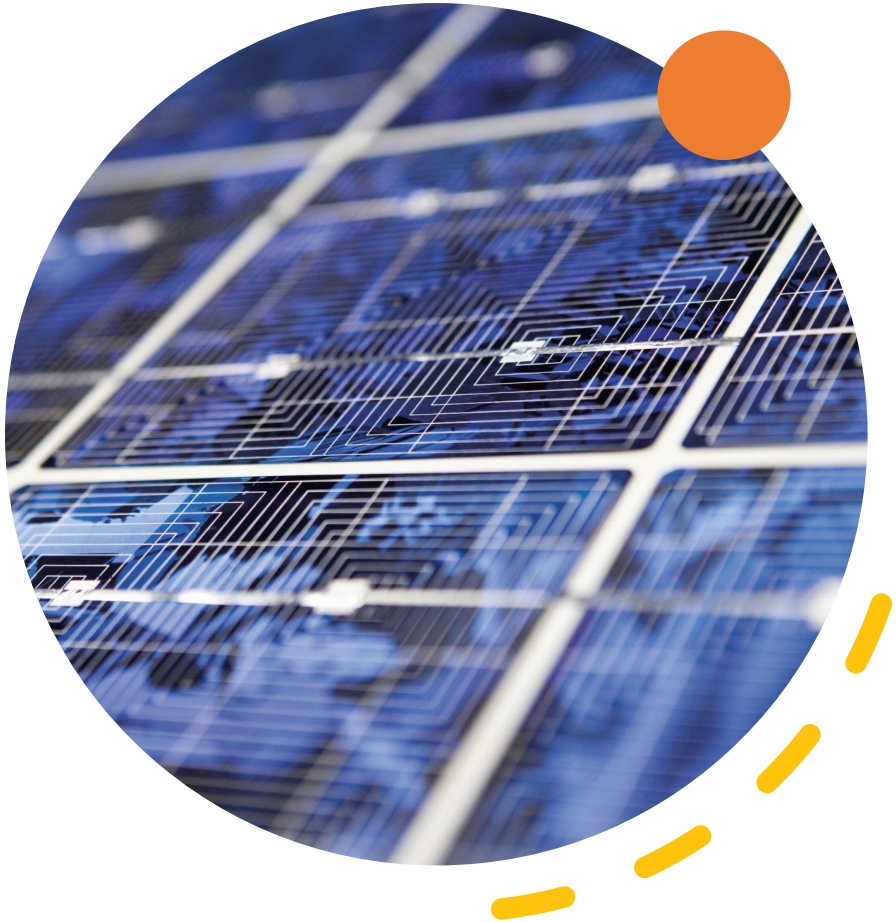
Pupil Transportation models

Primary Models of transporting students –

- School bus routing methods are ways of determining the sequence of stops school buses make in picking up and delivering students to their respective schools. A wide variety of techniques is available for school bus routing that may be divided into three general categories:
- 1. Manual procedures,
- 2. Computer-assisted manual design methods
- 3. Computerized design programs often called Optimization routing

The algorithms and programs that were developed to design school bus routes are based on one of the following approaches:

- 1. The traveling salesman approach
- 2. The vehicle delivery or, as its solution became known as, the savings approach
- 3. The random approach



Pupil Transportation on Transit

- Seattle, WA – using Transit as a to and from source as well as program specific transportation.
- Kansas City, MO – systems integration using RFID, allowing for multi-modal transportation models.
- Dekalb, GA – 1800 school bus fleet, operational efficiency analysis to re-structure and reduce overall numbers of school buses.
- Boston, MA –transportation schematic to provide socio-economic families early learning opportunities.
- Fresno, CA – Re-routed district after significant boundary adjustment to growth and new school openings.

Student Transportation Routing

Regular to-and-from routes

- Hub and Spoke
- Geographic Region – Loop Configurations
- Special Shuttles

Multi-tier routing

- Single tier (k-12)
- Double tier (k-5, 6-12)
- Triple tier (k-5, 6-8, 9-12)
- Bell times
- Separation of siblings
- Impact to extra curricular schedules

Fleet Options

Bus sizing should be determined by two primary variables

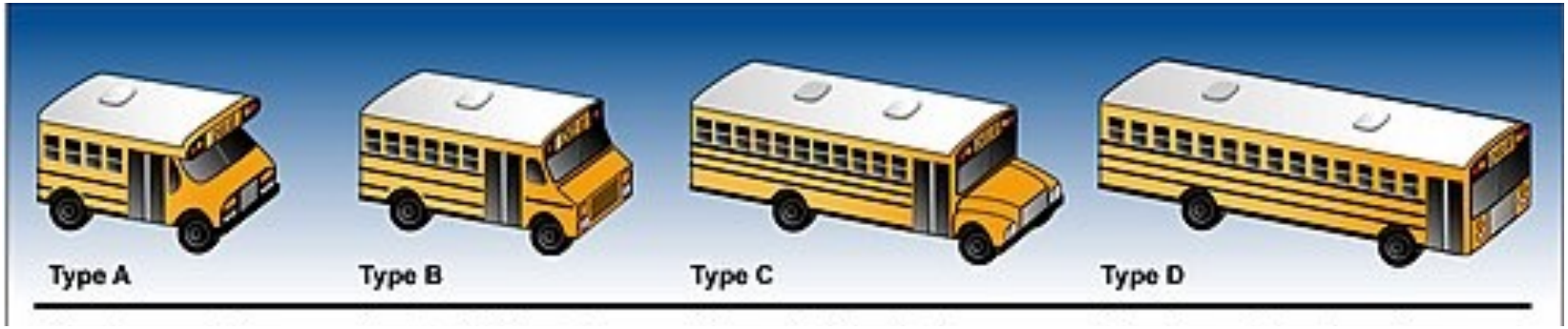
- Utilization – how many students are on a bus at any given time
- Sizing – maximum potential riders

Various Bus sizes

- Type A – used for special needs students / pre-school / rural routes
- Type B – used for special needs w/mobility device stations (1-2)
- Type C – Medium duty bus used for larger geographic areas and low utilization / ridership
- Type D – Large capacity buses used for higher concentration of ridership in a more densely populated area.

Bus Specification

- Type A school bus is a conversion bus constructed utilizing a cutaway front-section vehicle with a left-side driver's door. This definition includes two classifications: Type A1, with a gross vehicle weight rating (GVWR) of 14,500 pounds or less, and Type A2, with a GVWR greater than 14,500 pounds and less than or equal to 21,500 pounds. Capacity (10-30)
- Type B school bus is constructed utilizing a stripped chassis. The entrance door is behind the front wheels. This definition includes two classifications: Type B1, with a GVWR of 10,000 pounds or less; and Type B2, with a GVWR greater than 10,000 pounds. Capacity (12-36)
- Type C, or conventional, school bus is constructed utilizing a chassis with a hood and front-fender assembly. The entrance door is behind the front wheels. This type also includes the cutaway truck chassis or truck chassis with cab with or without a left-side door and with a GVWR greater than 21,500 pounds. Capacity (up to 80)
- Type D, or transit-style, school bus is constructed utilizing a stripped chassis. The entrance door is ahead of the front wheels. Capacity (up to 90)

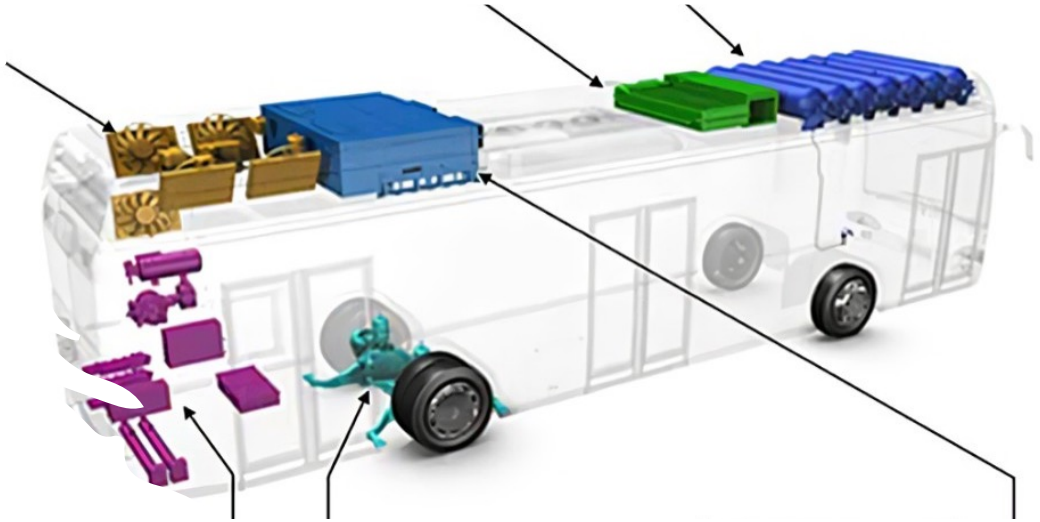


New Fleet Models – Zero-emission Buses

- EV Buses
  - BEAST (Electric School Bus)
  - The BEAST stands for battery electric automotive school transportation.

Zero-emission Buses – cont.

- Hydrogen Fuel Cell Electric Buses



Acquisition and Equipment Options

Acquistion	Lease Fossil Fuel
	Purchase ZEV
	Staggered procurement
	5, 10, and 15-year useful life cycle(s)
Equipment	How many is determined by utilization and sizing
	One bus per school current configuration vs. How many routes
	Walk vs rider percentage by school
	Equipment application

Facts and Figures

SY 2018-19 Washington State transported 37% of the student population.

Durham School Services provides transportation for over 850 special education students and 9,150 regular education students traveling 9,000 miles daily. They also provide field trip services for SPS students.

Current enrollment of the Spokane School District is roughly 29,000 this equates to transporting 35%* of all eligible students.

In 2019 district transportation costs were $11,755,816 or approximately $1,176 per student. This is an average across all students, typically special education costs are significantly higher.

* Does not consider the total number of students who live within the radius safe walking areas

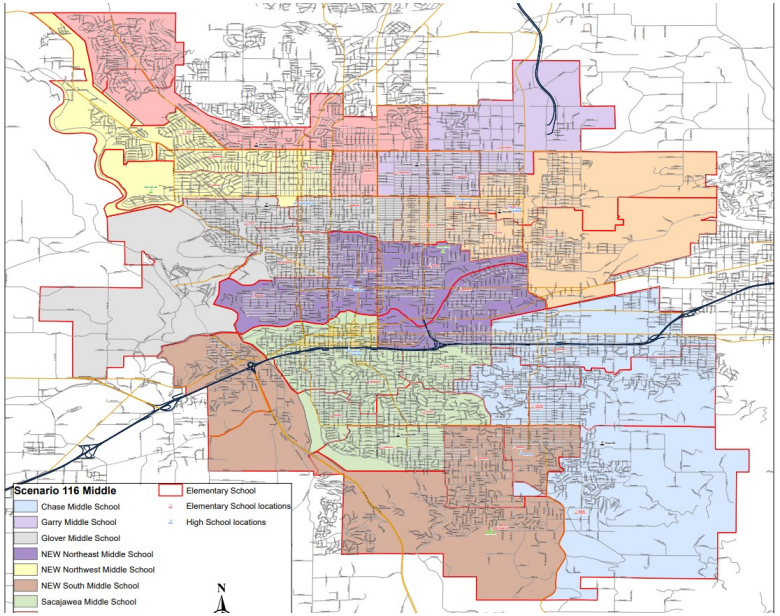
Community Resources

Spokane Transit Authority (STA) provides transit bus services throughout the City of Spokane.

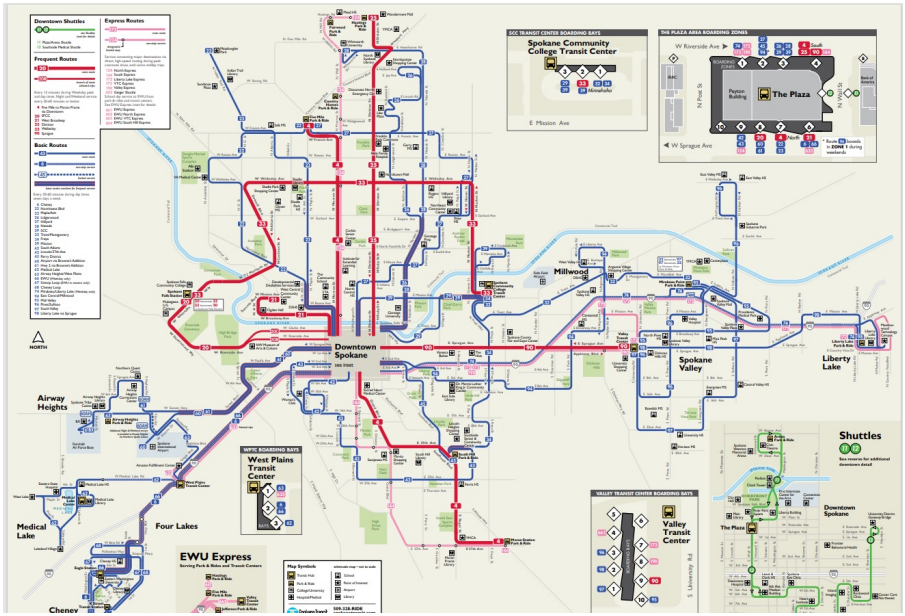
Currently STA provides limited student transportations services.

STA and SPS, working in conjunction could potentially find more effective models for transporting Middle and High school students.

Spokane School District MS Boundary



Spokane Transit Authority Service Area



Funding approaches

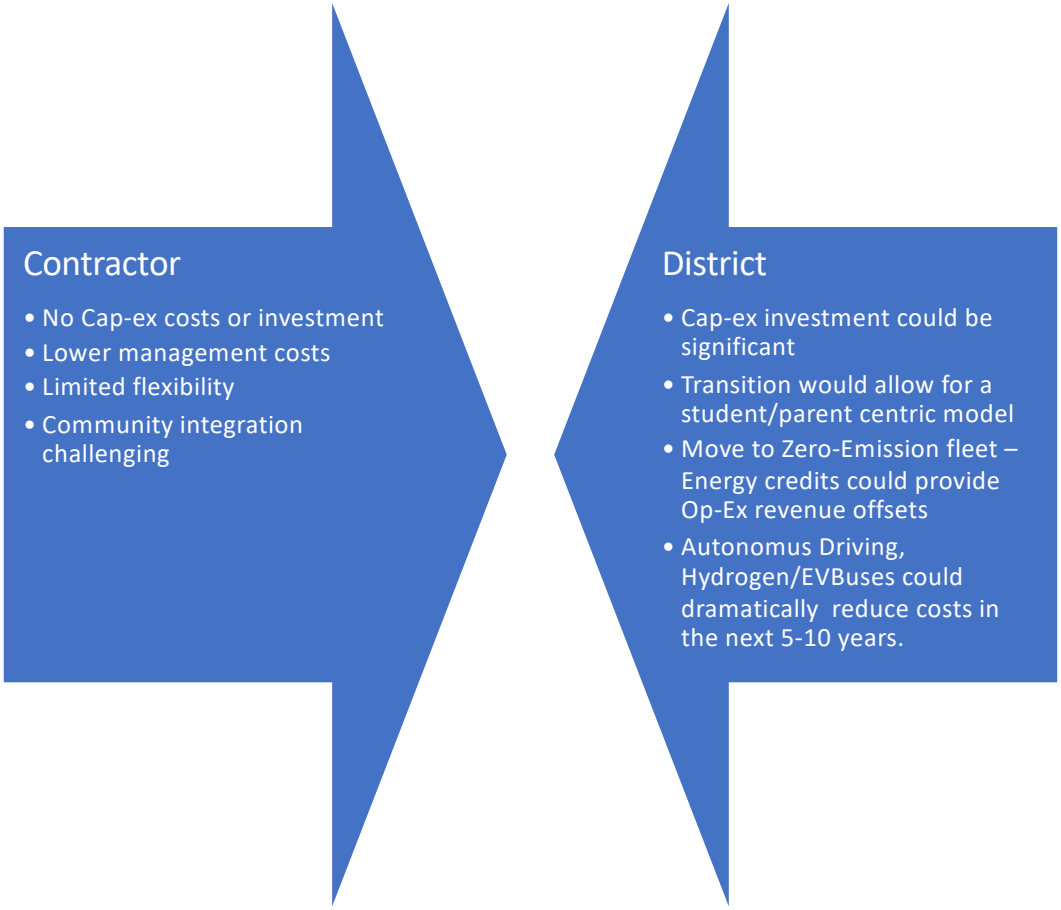
Approaches:

- Contactor vs District Ownership
- TVF Funding and Depreciation Allocations
- Transportation Bond
- Lease vs Buy
- Cap-Ex vs Op-Ex

Analysis:

- With only 35% of the student population riding a bus the opportunity to transition to a District Ownership model a lower-than-average cost point.
- Outsourcing provides less management involvement and burden but potentially sacrifices service quality.

Contractor vs District Owned



The Road to Options

Detailed capital and operating cost comparison Contractor vs District

Implementation timeline to move to evaluate a District operational model

Fleet standardization and procurement standards

Routing optimization modeling

Community transportation integration plan – Transit and Pupil Transportation

Stakeholder input and engagement – explaining the plan

Roadmap to success