



Greater Morgantown  
Transit Master Plan



**MEMORANDUM**

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*To: Steering Committee Members*

*Date: April 14, 2007*

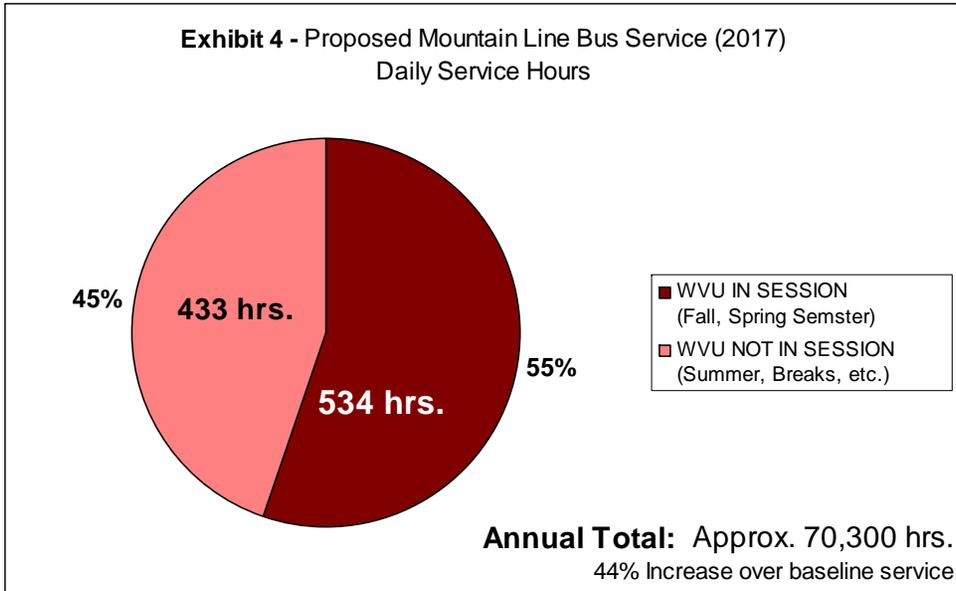
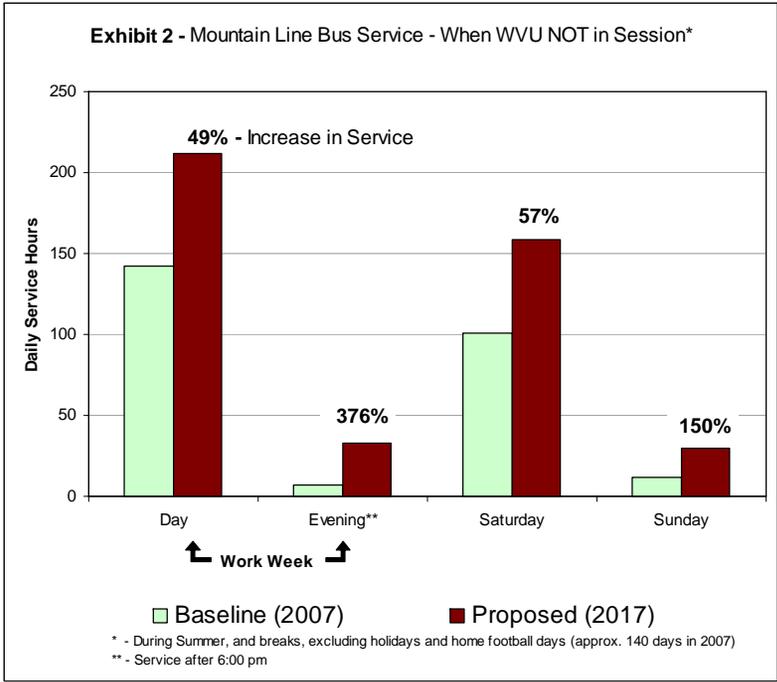
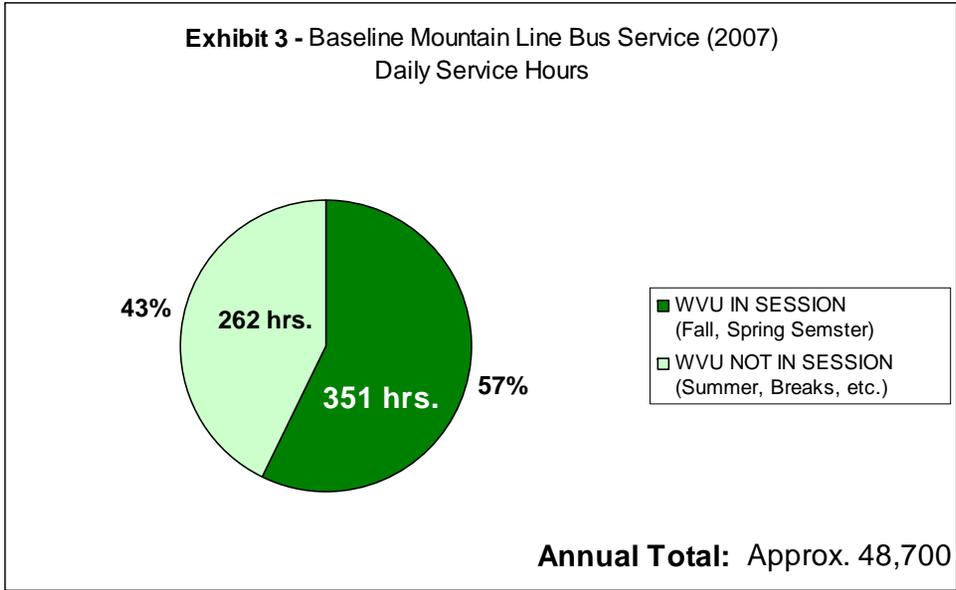
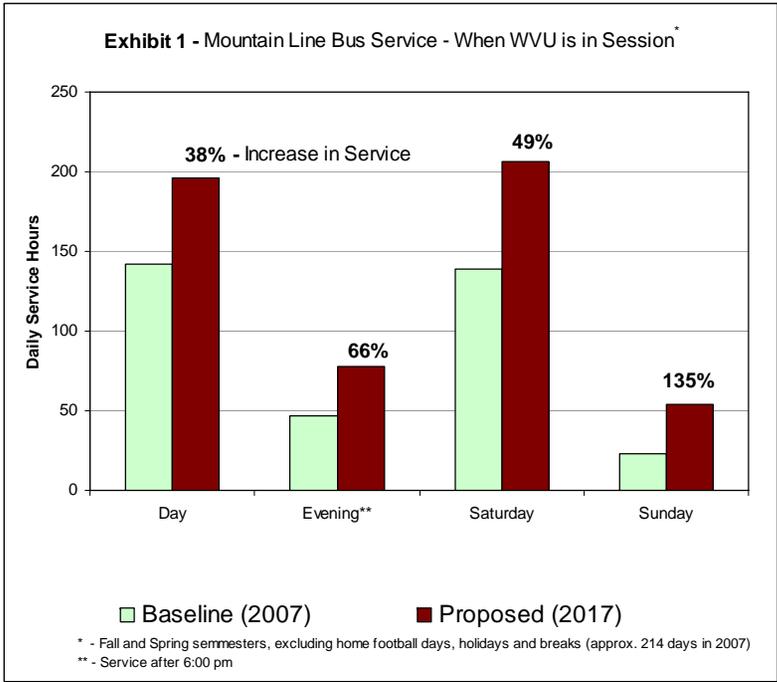
***Subject: Greater Morgantown Transit Plan – Draft Alternatives and Implementation***

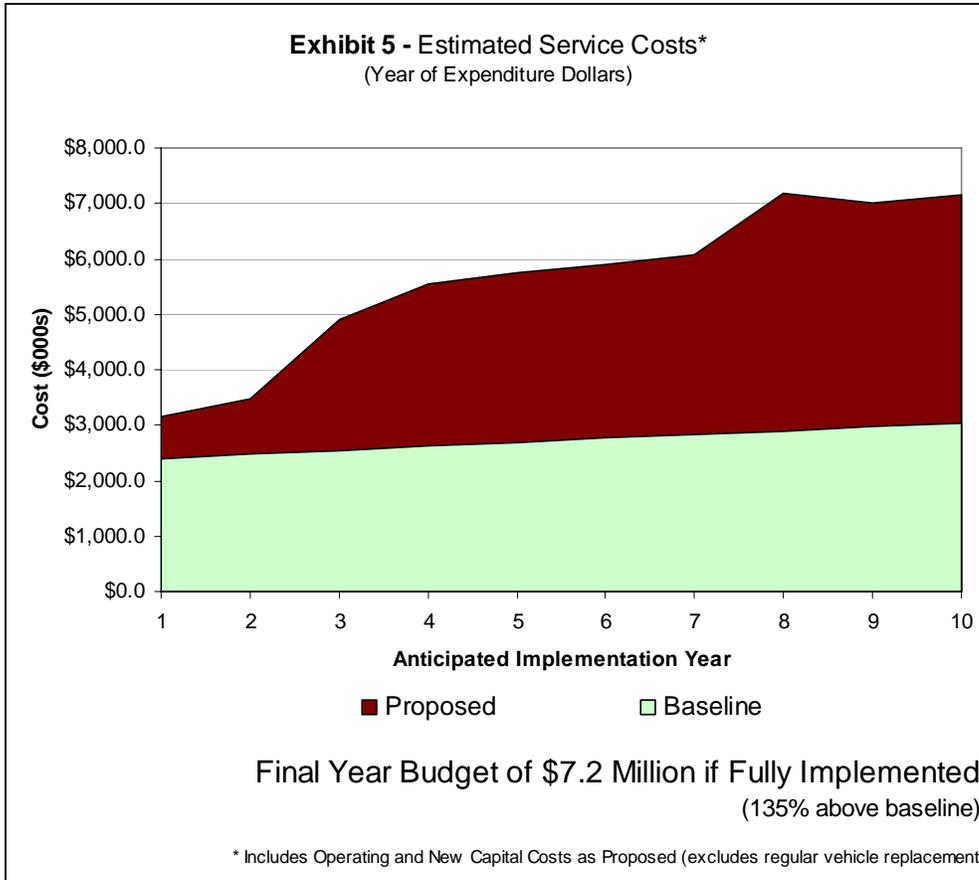
The analysis of Mountain Line Bus services began with a study of route-level performance indicators and historic passenger trends. In consideration of the recommendations of previous planning efforts, the stated goals and objectives for this study, and input from both the project Steering Committee and the general public, a ten-year system proposal was developed.

The proposed service plan was developed in three key components. These include:

- **Service Modifications:** To include minor route adjustments for existing services, increases in operating frequency, and adjustments to the current spans of service provided on select routes.
- **New Services:** To include newly developed routes, culled from an alternatives selection process to ascertain the most promising new services. Also included is the continuation of several demonstration initiatives that have been recently established.
- **Supportive Policy:** To include capital improvements, both WVU and City policy actions, and other oversight or administrative modifications that support the service proposals outlined and otherwise necessary to monitor plan progress and promote its success.

Annual operating and capital cost estimates were developed for service proposals in 2008 dollars and then escalated to provide inflation adjusted year of expenditure dollars over the duration of this planning period. The proposal items and increased service hours have been distributed across numerous routes and on various days as detailed in the following exhibits and outlined in this memo. Overarching goals, developed in detail in earlier stages of the study emphasized a need for capacity increases on inter-campus routes and increased evening and weekend services that would be a benefit to the student population and community alike. In consideration of these goals, based on capacity and financial constraints, and in light of general ridership trends and habits, **this study recommends a ten-year system objective of approximately 70,000 annual service hours.** See Exhibits 1-4 for a breakdown of the service improvements on a daily basis. Exhibit 5 provides an overview of the annual costs based on the proposed implementation timeframe. The remainder of this memo provides additional detail on the impetus for these proposals and additional details on the various components of this plan.





**MODIFIED SERVICE**

As a college town, Mountain Line service is dominated by the WVU class calendar. In fact, the relative ease in traveling around Morgantown can be based upon whether class is in regular session or a home football game is being played. As such, the baseline system service (2007) that was analyzed reflected a 57% premium on daily service hours focused on when WVU is in regular session (Exhibit 3). Extensive transit service during these times is essential to address the large captive demand for mobility across campuses, as well as to local shopping and entertainment venues. This level of service is needed to provide a reasonable mobility alternative that is also in concert with many stated objectives in the community aimed at reducing automobile use by the WVU student body, faculty, and general public.

**Highlights of the proposed service modifications include:**

- 1) Multi-vehicle routes to reduce service frequency (five routes)
- 2) Short turn runs on existing routes (three routes)
- 3) Weeknight service extended until 7pm (six routes)
- 4) PRT operations extended on Friday / Saturday (until 12:30am)
- 5) Expanded Sunday operations
- 6) Explore subscription service delivery on low frequency/ridership routes (three routes)

## **NEW SERVICE**

The existing and extensive transit route coverage already provided by Mountain Line dictated a limited need for completely new routes, and in fact all new services envisioned serve areas already touched by some level of existing transit service. The development of new services involved an iterative process that reduced a collection of several conceptual bus transit routes based on stakeholder input and evaluation. Refinements to alternatives with the best potential were then studied to determine what concept could be achieved as service modifications or as new routes part of an overall system expansion.

### **Highlights of proposed new services include:**

- 7) New route connecting Valley View and Suncrest to WVU Life Sciences Building
- 8) New parking shuttle from Suncrest to WVU Evansdale Campus
- 9) Develop new service to fill gap in PRT operating schedule (during WVU breaks)
- 10) Express commuter bus service to/from Cheat Lake and Downtown

## **TRANSIT SUPPORTIVE POLICY**

Transit needs to be seen as one component of a multi-modal solution to providing quality mobility choices for Morgantown and area residents. It is also equally important to continue to pursue improvements to highway, bicycle, and pedestrian networks which function in concert with transit services. Current development patterns have hindered efficient transit service, with many projects favoring remote locations, difficult access for transit vehicles, and a lack of sidewalks and internal pedestrian circulation. A formalized development review process should be initiated with a focus on advocating transit supportive features and the general sustainability of design proposals. Finally, this plan recommends potential actions towards fare policy and service standard development that may guide further modifications and expansions of the system into the future.

### **Highlights of supportive policy include:**

- 11) Prominent role of retail centers as transit destinations and commuter lots (three sites)
- 12) Transit-specific highway improvement projects (eight specifically identified)
- 13) Fixed-stop locations on inter-campus services
- 14) Investigation of car-sharing/parking cash-out programs
- 15) Feasibility study to create a Sunnyside PRT station and intermodal facility
- 16) Land-use: Establishment of special transportation/entertainment districts
- 17) Review of fare policy/structure
- 18) Service guidelines

**RECOMMENDATION DETAILS**

**1. Multi-vehicle routes to reduce service frequency**

**MODIFIED SERVICE**

Multi-vehicle operations are targeted to assure high frequency service, especially on longer routes. In some cases these improvements are targeted to address overcrowding and capacity issues, and in other cases the improved frequency is intended to support access to retail locations for shoppers and workers. The improved service achieved through the introduction of another vehicle must be balanced against the procurement cost and added complexity in scheduling, especially if multi-vehicle operation is anticipated only during a peak period. Attempts to maximize vehicle and staff utilization are accommodated in this plan.

<b>Route</b>	<b>Service Recommendation</b>	<b>Timeframe (years)</b>	<b>Est. Annual Operating Cost (Vehicle Costs)</b> <small>(in 2008 \$)</small>
Blue & Gold	Provide additional vehicle on this route during peak class times, assumed from 8:00am – 4:00pm on weekdays. Investigate reverse/seperate loops, skip stop, or platoon service to establish optimum headway (assumed 15 minutes for cost est.)	1-2	<b>\$60,000</b> (\$300,000)
Cassville	Already scheduled to be initiated as a one-year demonstration project starting in April 2008. This plan also proposes the same number of short-turn runs (12) for Saturday service.	1-2	<b>\$175,000</b>
Orange	Operate additional vehicle during off-peak times, reduce headway to 30 minutes between 8:00am and 4:30pm, as well as between 6:00pm and 10:30pm on PM services during WVU regular sessions.	3-4	<b>\$100,000</b> (\$300,000)
Southside	Additional peak period vehicle, to provide express inbound in AM and express outbound in PM to potential Mountaineer Mall satellite parking lot location.	3-4	<b>\$50,000</b>
Tyrone / Blue	Combine shorter segments of these two routes on Saturday ONLY. Target service frequency of 30 minutes from 9:00am – 9:00pm, or 60 minutes if loops operate in opposite directions.	5-6	<b>\$15,000</b>
<b>EST. TOTAL ANNUAL OPERATING COST</b>			<b>\$400,000</b>
<small>(Vehicle Costs for 2 heavy-duty buses)</small>			<small>(\$600,000)</small>

**2. Short turn runs on existing routes**

**MODIFIED SERVICE**

Short turn operations are modifications made to longer routes to accommodate more frequent service to a major activity center not at the route end-point. The Cassville, Southside and Tyrone / Blue routes detailed for two-vehicle operations are proposed to incorporate short-turn service and the costs of these modifications are inclusive of the changes already stated for two-vehicle operation.

3. Weeknight service extended until 7pm

**MODIFIED SERVICE**

Weeknight service extensions are proposed to provide additional access to retail establishments and to accommodate commuter operations. Initial extension to 7:00pm is envisioned, with Saturday evening service when WVU is in regular session until 9:00pm.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
Orange Line PM	Provide service to 7:00pm on this line year-round. The Orange Line PM service currently stops at 5:46pm when WVU is not in regular session.	1-2	\$20,000
Green Southside Gold Red Tyrone / Blue	Provide additional runs on each route to extend service to 7:00pm year-round. When WVU is in regular session, further extend the hours of operation on these routes to 9:00pm on Saturdays ONLY.	3-6	\$235,000
<b>EST. TOTAL ANNUAL OPERATING COST</b>			<b>\$255,000</b>

4. PRT operations extended on Friday / Saturday

**MODIFIED SERVICE**

When WVU is in regular session, the PRT currently operates until 10:15pm on Friday and until 5:00pm on Saturday. It is recommended that the PRT remain in operation on these two nights until 12:30am, to accommodate a portion of the large number of trips to downtown Morgantown. Past ridership figures indicate that slightly more than 50% of the riders travel before 12:30am on the Mountain Line Campus PM route (over 70,000 trips in 2007).

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
WVU PRT	Operate this service until 12:30am on Friday and Saturday when WVU is in regular session.	3-4	\$300,000

5. Expanded Sunday operations

**MODIFIED SERVICE**

Sunday services are identified specifically in support of the major retail and shopping destinations, in order to provide for the travel demand of consumers and employees alike. It is further recommended that a pilot housing development service agreement be amended where possible to provide Sunday service to Downtown. In providing for this need, these Sunday services presented in this plan should be sufficient for WVU to cease operation of its Sunday Mall Run service from the Towers and Mountainlair locations.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
Green Orange Southside	Operate service on these routes from approximately 11:00am – 6:00pm year-round.	1-2	<b>\$70,000</b>
The District (West Run)	Provide service on the longer “Late Night” route during the times 10:30am – 10:30pm on Sunday when WVU is in regular session.	3-4	<b>\$35,000</b>
<b>EST. TOTAL ANNUAL OPERATING COST</b>			<b>\$105,000</b>

6. Subscription service options

**MODIFIED SERVICE**

It is recommended that certain low passenger volume routes, which feature infrequent service to areas with limited future planned development be explored for conversion to subscription services. The objective of this recommendation would not be a service reduction, but rather to evaluate the annual expenditures on three specific routes and explore the options to take the same expense to provide and/or purchase subscription service based directly on community need.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
Brown Crown Mountain Heights	Investigate subscription service options for these routes.	3-6	<b>\$110,000</b>  (No net increase)

7. Valley View and Suncrest Circulator

NEW SERVICE

This new route is currently a proposed short-term demonstration project for Mountain Line and WVU to provide a circulator service to the high-density developments adjacent to the Stadium and Valley View Avenue. This plan supports this concept and calls for possible extensions of the hours of operation during WVU regular session and a continuation of this service on a more limited year-round basis to provide an additional connection to the proposed Suncrest Towne Center satellite parking lot with downtown. In support of retail shopping opportunities at the Suncrest Towne Center, this service is also recommended to operate on Saturdays and Sundays with a similar route extension into downtown, during WVU regular sessions only. Service increases can and should be introduced incrementally on this route.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
Valley View	<p>Circulator service to the Stadium area and Valley View Avenue with extension to the Suncrest Towne Center Plaza. Service would operate as follows:</p> <p><b>During WVU regular session:</b></p> <p>30 minute headways from 7:30am – 7:30pm with route service to Life Sciences Building</p> <p>60 minute headway from 10:30am – 10:30pm on Saturday and Sunday with route service to downtown</p> <p><b>During WVU Summer and breaks:</b></p> <p>Operate 15 daily peak commuter runs to downtown from 7:30am – 7:30pm</p>	1-4	\$190,000

8. Suncrest Parking Shuttle to WVU Evansdale Campus

NEW SERVICE

Suncrest Town Center is a new development off WV 705 and is currently un-served by Mountain Line routes. It features a close location and possible opportunity for shared use of a portion of the parking provided. Shuttle services from this location to the Medical Center PRT intermodal facility could be provided on a peak-hour basis. The route could further be altered in the off-peak direction to provide additional connectivity to Monongalia General Hospital.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost (in 2008 \$)
Suncrest Shuttle	Provide peak-hour commuter services between the Suncrest Towne Center Plaza and the Medical Center PRT station.	3-4	\$55,000

9. PRT Shadow Service

NEW SERVICE

In order to enhance the suitability for the PRT for community-based and commuter trips, it is imperative that similar levels of service are available year-round and options are provided when the PRT system is unavailable during University breaks. It is recognized that extensions of PRT operations is cost prohibitive and requires substantial ridership to justify this expense. As an alternative, this plan suggests that Mountain Line bus service provide a “shadow” service that would connect the various station sites during the periods when the PRT is not available. This service is also recommended to operate on Sundays during the summer, to replace the services provided by the Blue & Gold connector during this time. PRT Shadow services will enable new Sunday transit operations during the summer to be better utilized by the community in addition to still providing a service to students.

Route	Service Recommendation	Timeframe (years)	Est. Annual: Operating Cost
PRT Shadow	<p><b>During WVU regular session breaks in PRT service:</b></p> <p>Two vehicles operating at 15 minute headways on the existing PRT schedule from 6:30am to 10:15pm. A third vehicle is proposed for operation during the peak times of 7:00am – 8:30am and 4:30pm – 6:30pm which will reduce headways further to 7.5 minutes. A total of 76 weekday runs would be required for this service.</p> <p><b>On Sundays during WVU Summer session:</b></p> <p>Two vehicles operating on PRT Saturday hours of 9:30am – 5:00pm, with headway of 15 min.</p>	1-2	\$65,000

10. Cheat Lake Express Bus

NEW SERVICE

Cheat Lake has been a rapidly growing bedroom community for Morgantown and continued growth is forecast for this region approximately seven miles from Downtown. Commuter services are envisioned to capture a portion of inbound workday trips at the I-68 interchange through the provision of an express bus route to Downtown. Due to travel times and congestion on this route, two vehicles would be needed to operate the service in order to provide sufficient travel choice. Initial utilization of the Grey Line bus, before and after its regularly scheduled run, on this service should be investigated for one of the vehicle needs.

Route	Service Recommendation	Timeframe (years)	Est. Annual Operating Cost (Vehicle Costs) (in 2008 \$)
Cheat Lake Express Bus	Provide peak-hour commuter services between the Cheat Lake exit #10 on I-68 and downtown Morgantown destinations.	7-8	\$225,000 (\$350,000)

<b>Transit Supportive Policy</b>	<b>Timeframe (years)</b>
<p>11. <u>Prominent role of retail centers as transit destinations and commuter lots.</u></p> <p>As a component of this plan, a series of commuter-oriented locations have been designated throughout the Morgantown area. In specific reference to the satellite parking lots, the advantages they offer are relatively short travel times via bus, service to multiple destinations, and a location in a retail center. In these cases, the opportunities for joint usage of parking-spaces could be of mutual benefit to the transit agency and the property owner. The adjacent retail activities can also help generate some ridership in the reverse direction and during off-peak commuter hours. It is equally important that these facilities be designated locations for “smart stations”. As routes serving these locations do not operate on clock-face intervals, and with multiple routes and destinations serving some facilities (<b>see addendum</b>), the next departure and destination needs to be displayed in a modest shelter adjacent to the designated parking area.</p>	<p>Implement one (1) new facility each year, in years 2, 3, and 4</p> <p>Express bus facility to coincide with Cheat Lake service</p>
<p>12. <u>Transit specific highway improvements</u></p> <p>Several transit upgrades can be components of planned or proposed highway projects. It is important to advance the specific transit aspects of these projects throughout the project development process. Projects include:</p> <ul style="list-style-type: none"> <li>• Contra-flow lane on Walnut Street</li> <li>• BRT corridor</li> <li>• Easton Hill transit/HOV lane</li> <li>• Beechurst Avenue /Campus Drive queue jump</li> <li>• Signal priority in/out of Depot</li> <li>• Medical Center PRT station transit access road</li> </ul>	<p>2-10</p>
<p>13. <u>Fixed stop locations on inter-campus services</u></p> <p>In order to accelerate service in the University and Beechurst Avenue corridors, it is recommended that fixed stop locations be established and prominent signage installed. Additional high volume stops could include simple shelters and advertisement placements. Stop locations would correspond to traditional high boarding and alighting locations, with the implication that a minimum separation between stops be established (such as 1/8 mile) and maintained. The presence of signage and stops would also contribute to providing for a greater community presence of transit, especially in the Sunnyside neighborhood.</p>	<p>1-2</p>

<b>Transit Supportive Policy</b>	<b>Timeframe (years)</b>
<p>14. <u>Investigation of car-sharing/parking cash-out programs</u></p> <p>The policies and actions are needed to manage travel demand to core locations and to provide a further incentive to use the commuter services envisioned. Both initial approaches should address the employee populations of WVU campuses, downtown Morgantown, and other large single site employment centers. Initial survey results from this study indicated that many people need some travel mobility throughout the day, which transit cannot provide. Investigation of a car-sharing program to accommodate these mid-day trips would greatly enhance the attractiveness of transit for the commuting services envisioned in the plan. Further, if parking is subsidized by employees or insufficient connectivity is provided for mid-day errands, lunch or other activities, the effectiveness of proposed commuter services will be impacted. These and other actions need to be part of a commuter services program.</p>	<p>3-4</p> <p>Coincide with new commuter services</p>
<p>15. <u>Feasibility study to create a Sunnyside PRT station and intermodal facility</u></p> <p>A re-evaluation of the PRT system is a necessary component of further integrating this service with local bus routes. While major capital improvements to the PRT are likely outside the timeframe of this study, it is important to begin the groundwork for key enhancements. The Sunnyside neighborhood and the route modifications proposed in this plan would benefit greatly from a new intermediate station stop on the PRT adjacent to Beechurst Avenue, between 3<sup>rd</sup> and 6<sup>th</sup> Streets, as called for in the local plan. New operating methods for PRT should also be considered in such a feasibility study, as modifications to the station bypass capabilities of the current system could lead to more compact station requirements and allow sufficient retail and other development immediately adjacent to this (and other) PRT stations.</p>	<p>7-10</p>
<p>16. <u>Land-use: Establishment of special districts</u></p> <p>Encouraging transit-friendly development patterns, along with ample pedestrian and bicycling modes, provides further incentive to use transportation modes other than the private automobile. Special districts enable a municipality to apply certain criteria to design and planning of projects that would have a significant impact on trip generation, and assures a compatible character with stated community goals for walkable and sustainable neighborhoods. Further, special districts that benefit from enhanced transit infrastructure can also be established to help defray some maintenance and operating costs for services that are vital to surrounding businesses. Consider the following:</p> <ul style="list-style-type: none"> <li>• Transit Oriented Development District, aimed to encourage a mixture of residential, commercial, and employment opportunities within identified multi-modal station or other high capacity transit area.</li> <li>• Special Assessment Districts, established in core locations that benefit from extensive transit service. A small fee or levy would be applied to activities that benefit directly from the accessibility transit is providing.</li> </ul>	<p>2-4</p>

<b>Transit Supportive Policy</b>	<b>Timeframe (years)</b>
<p>17. <u>Review of fare policy/structure</u></p> <p>Fare policy is as much a social consideration as an economic consideration and several factors should be considered in developing fare policy for transit services, including community needs, political considerations and funding needs. The current fare system is reasonable and proper for current needs, however, in light of major new service expansion proposals, the following adjustments to the fare system may include:</p> <ul style="list-style-type: none"> <li>• Review of base fare / discounts</li> <li>• Introduction of a day-pass (unlimited one-day use)</li> <li>• Potential for zone fares (outlying areas)</li> </ul>	<p style="text-align: center;">3-6</p> <p>Complete before major expansion of evening hours</p>
<p>18. <u>Service guidelines</u></p> <p>In order to continue to monitor and track the progress and success of the initiatives proposed in this plan, the formal development and adoption of service guidelines is recommended to be applied to all routes and evaluated at set intervals throughout the year. Categories include:</p> <ul style="list-style-type: none"> <li>• Route performance thresholds (cost/passengers)</li> <li>• Maximum vehicle loadings</li> <li>• Span of Service</li> <li>• Route directness</li> <li>• Route deviations</li> <li>• Bus stop locations/design</li> </ul>	<p style="text-align: center;">4-5</p> <p>Recommended review of all aspects of initiated new services in year 5</p>

**Addendum:**

**Existing Commuter Facilities**

			<b>Routes</b>	<b>Daily</b>	<b>Frequency (min.)</b>	
	<b>Dest.<sup>(1)</sup></b>	<b>Service Span<sup>(2)</sup></b>	<b>Serving</b>	<b>Runs</b>	<b>Peak</b>	<b>Off-Peak</b>
Granville	D	7:17am - 5:10pm	1	21	15 - 30	15 - 30
Westover (Bus Depot)	D	6:45am - 11:11pm	4	44	15	60
WVU Coliseum	E	7:30am - 12:30am	2 <sup>(3)</sup>	78	10 - 15	10 - 60

**Proposed New Commuter Facilities**

			<b>Routes</b>	<b>Daily</b>	<b>Frequency (min.)</b>	
	<b>Dest.<sup>(1)</sup></b>	<b>Service Span<sup>(2)</sup></b>	<b>Serving</b>	<b>Runs</b>	<b>Peak</b>	<b>Off-Peak</b>
<b><u>Satellite Parking</u></b>						
University Town Center	D,E	6:50am - 5:10pm	2	48	15	15 - 30
Mountaineer Mall	D	7:00am - 6:30pm	2	35	15	30
Suncrest Towne Center Plaza	D, E	7:00am - 7:30pm	2	33	15	30 <sup>(4)</sup>
<b><u>Express Bus Service</u></b>						
Cheat Lake at I-68 (Interchange #10)	D	6:30am - 6:30pm	1	18	15	2 midday

NOTES:

- (1) D - Downtown Morgantown, E - Evansdale WVU Campus
- (2) Defined as first AM departure from commuter facility to last PM departure from destination
- (3) One route is a WVU shuttle
- (4) Service to Downtown ONLY, 1 midday trip to/from Evansdale