



the science of insight

STATEWIDE PARK-AND-RIDE FACILITIES PLAN

DECEMBER 2015



55 Railroad Row
White River Junction, VT 05001
802.295.4999
www.rsginc.com

PREPARED FOR:
VERMONT AGENCY OF TRANSPORTATION

SUBMITTED BY:
RSG

Acknowledgements

This plan was produced by the Vermont Agency of Transportation (VTrans). Amy Bell and Jackie Cassino provided staff support. The consultant team included Erica Wygonik, Peter Plumeau, David Grover, and Christine Sherman of RSG.

The development of this plan was made possible through the guidance and input of two committees- an Internal Agency Working Group (IWG) and an external Stakeholder Advisory Committee (SAC). Thanks and appreciation are extended to members of both committees, including:

John Adams	Agency of Commerce and Community Development
Meredith Birkett	Chittenden County Transportation Authority
Tina Bohl	Agency of Transportation
Aaron Brown	Upper Valley Transportation Management Association
Chris Company	Vermont Association of Planning & Development Agencies
Wayne Davis	Agency of Transportation
Wayne Gammell	Agency of Transportation
Mike Hedges	Agency of Transportation
Peter Keating	Chittenden County Regional Planning Commission
Todd Law	Agency of Transportation
Ross MacDonald	Agency of Transportation
Joe Segale	Agency of Transportation
Sue Scribner	Agency of Transportation
Sandy Thibault	Chittenden Area Transportation Management Association
Jason Van Driesche	Local Motion





STATEWIDE PARK-AND-RIDE FACILITIES PLAN

PREPARED FOR:
VERMONT AGENCY OF TRANSPORTATION

CONTENTS

1.0	EXECUTIVE SUMMARY	1-1
2.0	PLAN.....	2-1
2.1	Project Purpose	2-1
	Agency Vision	2-1
	Study Objectives	2-1
2.2	Creating the Plan	2-2
2.3	Findings.....	2-3
	Current Locations.....	2-3
	Overcapacity Lots.....	2-3
	Design Features	2-4
	Capital&MaintenanceCosts.....	2-4
	Funding Sources.....	2-4
	Additional Capacity.....	2-5
	Facility Prioritization.....	2-6
	Projected Costs.....	2-7
	Program Structure.....	2-7
	Recommendations.....	2-9





EXECUTIVE SUMMARY



PROJECT PURPOSE

Park-and-ride (P&R) facilities serve a key function within the statewide transportation network and in promoting the Agency’s vision. VTTrans’ vision for the state transportation network is “a safe, reliable, and multimodal transportation system that promotes Vermont’s quality of life and economic wellbeing.” These facilities promote multimodal transportation, increase the energy efficiency of the road network, and reduce the number of vehicles present on State highways. The VTTrans P&R Program has evolved organically over the years, from what can be characterized as a demand-and-response effort to a more sophisticated program involving numerous Agency sections and external Agency partners, developing and operating 30 state-owned lots and assisting in the development of over 49 municipal lots.

Park-and-ride facilities will continue to serve a vital role within the Vermont transportation network. These facilities will continue to function as a means to manage congestion on the system and increase occupancy levels in vehicles. The Agency identified a need to formalize the program in order to maximize the use of current facilities, standardize and streamline the process for expanding existing and developing new facilities, and sustainably manage Agency assets. The Statewide Park and Ride Facility Plan was developed with the following goals:

1. Document and summarize the characteristics, condition and utilization of existing facilities
2. Identify current asset management concerns
3. Identify and evaluate future funding needs for capital, maintenance, and operating expenditures
4. Investigate alternative funding scenarios to maintain existing facilities and develop additional facilities
5. Prioritize current facility investments and strategic future investments
6. Support the Agency of Transportation’s mission statement via the Park-and-Ride Facility Plan recommendations.

CREATING THE PLAN

This plan is the culmination of a multi-phased process examining Vermont’s current P&R program practices and structure, national best practices, regional needs assessments, current and future funding scenarios, and quantitative mechanisms for facility expansion and siting. VTTrans Project Managers and the RSG consulting team, with guidance from the IWG and the SAC, completed an existing conditions assessment and of internal practices, reviewed national best practices, and prepared a summary of future facility and programmatic needs including a quantitative tool to evaluate current facility capacity, the need for expansion, and potential siting of new facilities. Each of these reports and final recommendations were vetted through both committees and revised based on their feedback. In addition, VTTrans staff conducted outreach for additional comments through the Regional Planning Commissions and their Transportation Advisory Committees (TACs).



RECOMMENDATIONS

Based on the thorough investigation of the current VTrans P&R Program, national best practices, and current and future capacity modeling, the following recommendations are made:

- **Program Organization & Partners Group** - In order to collaboratively move forward with the recommendations identified in this Plan, the Program would benefit from quarterly meetings with representatives from the following Agency bureaus/sections: Asset Management & Performance; Municipal Operations; Municipal Assistance; Transit; and Policy & Planning. In addition, “at-large” members from TMAs, VAPDA, Local Motion, and other special interest groups could be brought in at strategic intervals.
- **Program Guidance** - The Partners Group should develop formal policies, procedures, and guidance to define how the Park-and-Ride program will operate. These would include outlining the appropriate roles, responsibilities, communication chains and funding streams. In addition, program goals and objectives (program metrics) should be established. The Partners Group should also develop standards regarding installation, inventorying, and maintenance of amenities.
- **Facility Prioritization and Siting Process** – The aforementioned Partners Group should refine the prioritization process for scoping and siting new facilities as well as the expansion of existing facilities. They should also develop supportive permitting rules to facilitate privately-owned lot development.
- **Data Management** – The Partners Group should standardize future data collection and expand data collected beyond annual count data to include facility condition data as well as operations and maintenance costs.

STATEWIDE PARK-AND-RIDE FACILITIES PLAN



PLAN



PROJECT PURPOSE

Park-and-ride (P&R) facilities serve a key function within the statewide transportation network and in promoting the Agency's Vision. These facilities promote multimodal transportation, increase the energy efficiency of the road network, and reduce the number of vehicles present on State highways.

The VTrans P&R Program has evolved organically over the years, from what can be characterized as a demand-and-response effort to a more sophisticated program involving numerous Agency sections and external Agency partners, developing and operating 30 state-owned lots and assisting in the development of over 49 municipal lots. The majority of the state-owned lots are located in the I-89, I-91, and US 7 corridors. Municipal lots serve local needs, often filling in the gaps off of the main interstate and state route corridors. This study, as well as previous studies of the entire state and specific regions, reveals that the need for P&Rs continues to grow and that prioritization is necessary to maintain and expand the system in a strategic and cost-effective manner.

Park-and-ride facilities will continue to serve a vital role within the Vermont transportation network. The Agency identified a need to formalize the program in order to maximize the use of current facilities, standardize and streamline the process for expanding existing and developing new facilities, and sustainably manage, maintain, and operate Agency assets. The Statewide Park and Ride Facility Plan was developed with the following goals:

1. Document and summarize the characteristics, condition and utilization of existing facilities
2. Identify current asset management concerns
3. Identify and evaluate future funding needs for capital, maintenance, and operating expenditures
4. Investigate alternative funding scenarios to maintain existing facilities and develop additional facilities
5. Prioritize current facility investments and strategic future investments
6. Support the Agency of Transportation's Vision statement via the Park-and-Ride Facility Plan recommendations.

CREATING THE PLAN

This plan is the culmination of a multi-phased process examining Vermont's current P&R program. VTrans Project Managers and the consulting team, with guidance from the Internal Agency Working Group (IWG) and the Stakeholder Advisory Committee (SAC), completed the following: inventoried existing lot features and reviewed facility conditions; calculated current utilization rate and capacity levels; noted inefficiencies in the existing data collection system; examined best practices from four states; enumerated funding sources these states use and compared these sources with VTrans' historical funding; developed a prioritization

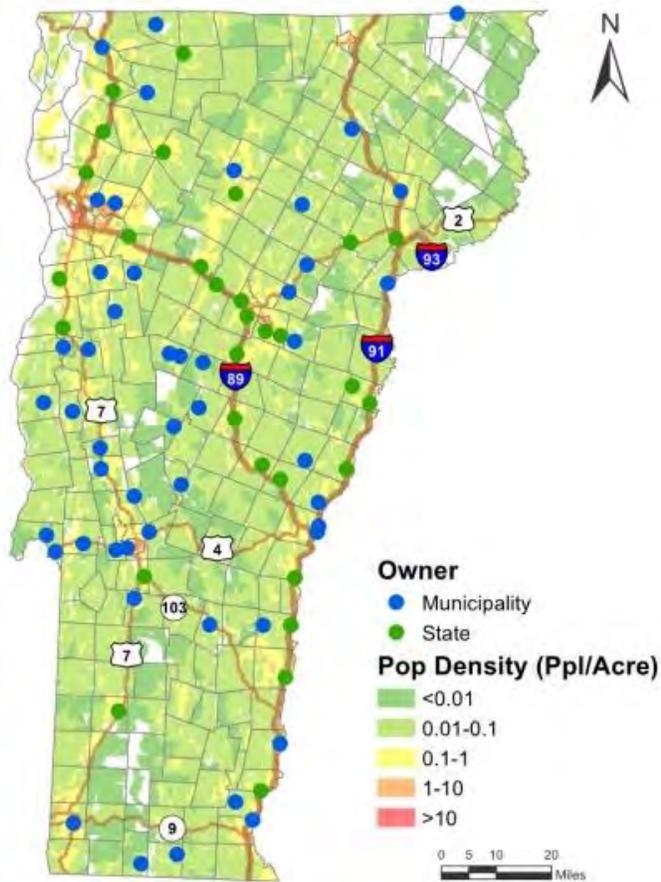
VTrans' vision for the state transportation network is "a safe, reliable, and multimodal transportation system that promotes Vermont's quality of life and economic wellbeing."



methodology for facility expansion and siting of new facilities; and explored areas where the park-and-ride system will need additional capacity and funding sources to achieve this strategy. Each section of the plan was vetted through both committees and revised based on their feedback. In addition, VTrans Project Managers conducted outreach for additional comments through the Regional Planning Commissions and their Transportation Advisory Committees (TACs) as well as through targeted internal meetings across disciplines for Agency staff feedback.

FINDINGS

FIGURE 1: MUNICIPAL & STATE PARK-AND-RIDE LOTS

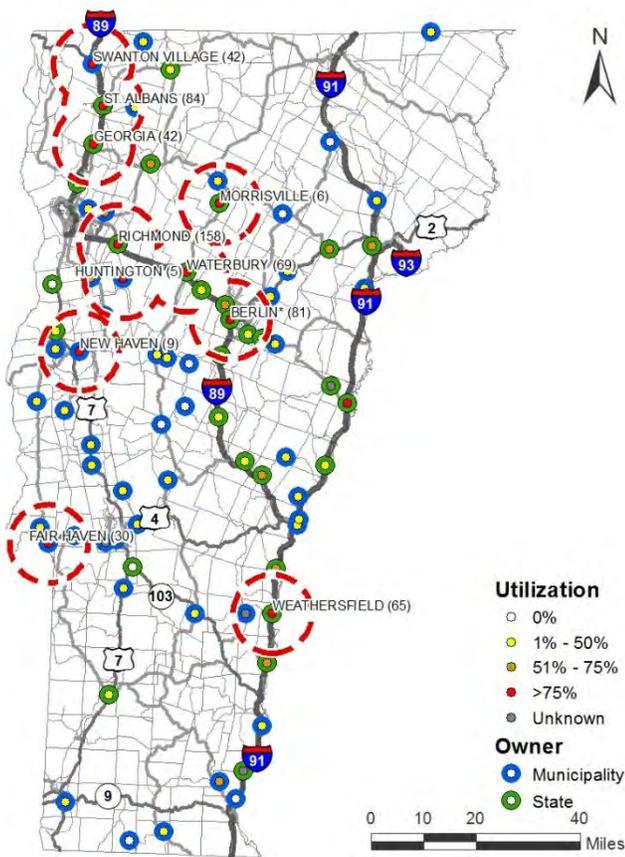


Current Locations: Of the 30 state-owned P&R lots, the capacity range is from 5 spaces (Corinth) to 106 spaces (Colchester), with an average of 47 spaces per lot. The 49 municipal lots range from 5 spaces (Huntington) to 60 spaces (Bennington) with an average of 19 spaces per lot. Larger lots are typically owned by the State and found along the Interstates. Most population and employment centers are served by a P&R either within the center or nearby. The majority of facilities are found on higher volume roads, with State P&Rs largely located on highways with greater than 10,000 vehicles per day. Municipal P&Rs serve roads with varying volumes.

Over-Capacity: While the majority of state residents have access to a

nearby P&R lot, many are limited by lots that are at or over capacity. A lot whose utilization is over 75% is considered over-capacity. Reviewing the existing park-and-ride locations and their utilization, overcapacity lots tend to be along or upstream from the Interstate - with a total of 7 state and 4 municipal lots considered over-capacity (Figure 2). Building on the success of the P&R network will require expanding these lots and monitoring for other lots that are nearing capacity.

FIGURE 2: OVER-CAPACITY PARK-AND-RIDE LOTS



Design Features: Design features at P&R facilities, such as bus shelters, lighting, and bicycle racks, provide benefits to users. Research shows that the most important factors in a potential user’s choice to use a lot are parking availability and perceived safety. Some design features, such as adequate lighting, safe crossings, and other safety features, can increase perceptions of safety. There are currently no formal policies or guidance regarding design features specific to Vermont P&Rs – facility designers usually specify them when appropriate, e.g. bus shelters where there is transit access. Design features provide benefits to P&R users, but they can also complicate maintenance activities. For example, shoveling sidewalks or repairing shelters, lighting, and charging stations do not typically fall under

established highway maintenance practices; thus, being prepared for these and similar tasks may require additional VTrans maintenance funds and staff.

Capital & Maintenance Costs: Historically, the annual budget of \$2-3 million for capital investment has been sufficient to meet demand. P&R capital costs are highly variable between projects, and it is difficult to determine a unit cost per space. For planning purposes, it can be assumed that a new state lot will cost between \$5,000 and \$15,000 per space, and municipal lots average \$4,000 per space. Neither of these cost estimates includes the cost of land acquisition. It is similarly difficult to determine maintenance and operations (MO) costs per space due to variations in MO levels, weather conditions, P&R layouts, and distance of the P&R from the closest District maintenance facility. Historically, highways and P&R have drawn on the same maintenance funds and have not been tracked independently, minimal data exists to develop MO costs specific to P&R lots. Current Maintenance and Operations Bureau (MOB) budgets are insufficient to provide the appropriate level of attention, currently estimated at a conservative average of \$37,500-\$50,000 annually for a medium size lot. A clear understanding of total facility costs needs to be analyzed and then accounted for in the maintenance budget.

Funding Sources: Historically, VTrans has used federal Congestion Mitigation and Air Quality Improvement (CMAQ) and Surface Transportation Program (STP) funds for state-



owned P&R capital costs. VTtrans spends \$2-\$3 million annually for design, ROW acquisition, and construction of P&R lots. Maintenance and operation costs are currently funded from the State Transportation Fund under the same line items as highway maintenance and operations. VTtrans also maintains a municipal P&R grant program, with \$250,000 budgeted annually from the State Transportation Fund, at the discretion of the Legislature. One of the benefits of the Municipal P&R Program is the facilitation of lot development that removes congestion from state highways while not adding to VTtrans’ maintenance burden.

Additional Capacity at Existing Lots: Overcapacity park-and-ride lots are well located and familiar to the people who use them. As shown in Table 1, there are 11 overcapacity lots, primarily located along the I-89 corridor between Swanton and Berlin. In order to increase capacity in these areas to reach a targeted utilization rate of 50%, it is estimated that the following additional spaces are needed (Table 1).

TABLE 1: ADDITIONAL SPACES AT OVER-CAPACITY LOTS

Lot	Owner	Current Utilization	Additional Spaces
Richmond	State	94%	140
Berlin*	State	100%	81
St. Albans	State	94%	74
Weathersfield	State	102%	67
Waterbury	State	94%	61
Swanton Village	Municipal	88%	32
Georgia	State	76%	22
Fair Haven	Municipal	83%	20
New Haven	Municipal	100%	9
Morrisville**	State	100%	6
Huntington	Municipal	80%	3
Total			515
*Construction planned at this location			
**As the Morrisville lot is shared with airport parking, differentiating between airport and park-and-ride users is challenging and may lead to inaccurate occupancy information.			

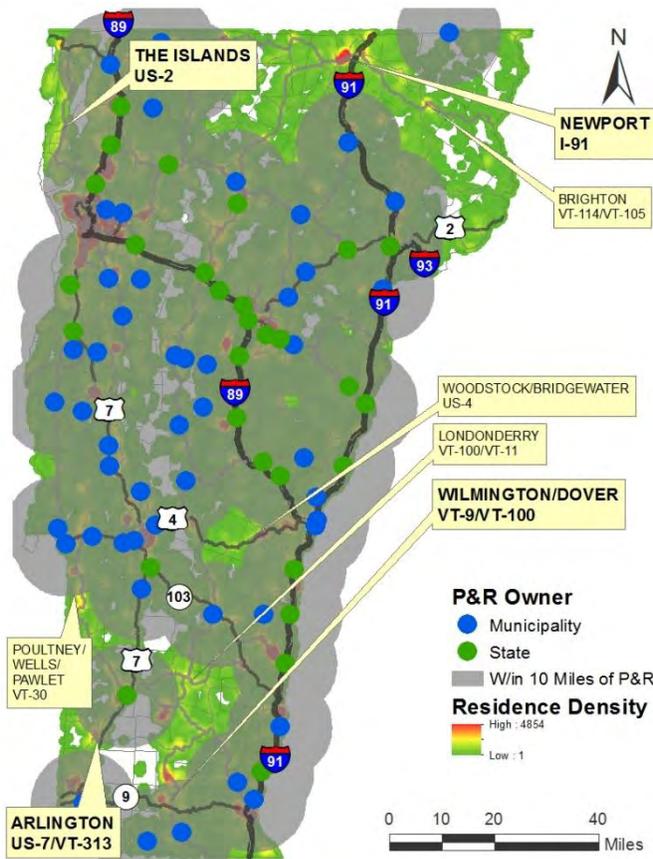
In examining existing facilities using utilization as a measure, a strong theme emerges that the most successful park-and-ride facilities have transit service and are located within 0.25 miles of a transit stop. Of the 11 existing overcapacity facilities, 10 have transit service. Of the remaining 10 facilities that have occupancy rates above 50%, all but one have transit service (Table 2).

TABLE 2: UTILIZATION VERSUS TRANSIT ACCESS

Utilization Rate	Total in Category	Number with Transit***	Percent with Transit
0%	9	4	44%
1-50%	44	22	50%
50-75%	10	9	90%
>75%	11	10	91%

***Transit stop within 0.25 miles of park-and-ride lot

FIGURE 3: AREAS OF UNMET NEED



Most park-and-ride users live within 10 miles of the lot, and the lot is along their existing commute route. As shown in Figure 3, several high residential density areas in the State are more than 10 miles to a park-and-ride. Locations in bold are located along major roads and were also identified in the Regional Needs Assessments conducted by the RPCs. These could be either municipally-owned or State-owned facilities. Other locations may be best served by a smaller, municipally-owned park-and-ride facility. Approximately 130 new spaces will need to be located at new facilities to meet demand in these areas. The Agency will need to perform additional analysis to determine the best site for the

park-and-ride lots within these areas. Staff should consider the criteria in Table 3 as well as input from RPC and local officials.

Facility Prioritization: We recommend the following criteria to evaluate future capacity addition projects:

- Statewide P&R Facility Plan identified need
- Max utilization (existing lots)
- Proximity to residential density
- Proximity to an Interstate
- Transit presence and frequency of service

- Location along commuter route
- Site feasibility
- Potential to reduce vehicle miles traveled (VMT)

Projects would be prioritized by assigning points to each of these categories in a way that upholds policy decisions. We recommend point allocations as shown in Table 3, but the Agency will ultimately need to decide how best to distribute points to maintain its priorities. For priority underserved areas, the location should receive 5 points in the utilization category. VTrans may decide to remove the utilization category and consider only lots that are over 75% capacity or in underserved areas. The project with the largest number of points would be the highest priority. The State does acknowledge that in more developed areas such as Chittenden County, intercept facilities may serve an important function in alleviating congestion issues. These facilities serve a fundamentally different role than State Park & Ride Facilities, and at this time, the State is not prioritizing these facilities.

Projected Costs: It is projected that 645 new spaces (515 at existing lots and 130 at new lots) are required to meet current demand and plan for the future. At the conservative estimate of \$15,000 per space to expand existing lots and \$12,000 per space to build new lots, it will cost about \$9.5 million dollars to build those spaces.

Assuming maintenance costs of \$37,500 per lot per year – the average of VTrans’ high and low estimates – current maintenance costs are approximately \$1.1 million annually. However, VTrans officials have noted that actual maintenance costs may be higher and that this figure does not include preventative maintenance or low-priority tasks such as landscaping and shoveling sidewalks. If the Agency elected not to build more lots and just maintains the existing ones, it would cost over \$1 million per year.

Program Structure: The current Park and Ride Program is not formally coordinated across sections. The official Program staff focus primarily on scoping and development of new facilities and expansion as needed. As there is not one dedicated program manager that oversees all aspects of the program, operations may not be as efficient as it could be under a more centralized arrangement. In addition, facility maintenance and operations have become more complex over time. As the number of facilities increase and expand across the state in order to meet demand and design features are enhanced, the Agency will continue to work collaboratively amongst various sections in order to effectively manage our current and future assets.

TABLE 3: DRAFT METHODOLOGY PRIORITIZING CAPACITY INVESTMENTS

Pts	Need Identified in P&R Plan (Y/N)	Max Utilization (existing lots)	Max Residential Density (within 1 mile)	Interstate Proximity	Transit	Location on Commuter Route	Site Feasibility (availability of land & constructability)	Reduces VMT
0	No	0-50%	<200	None	None	Far upstream	Multiple barriers	Low potential
1		50-75%	200-400	>0.5 mile	>0.5 mi			
2				Within 0.5 mile	Within 0.5 mile	Central spot	State or municipally owned, physical/ environmental constraints	Medium potential
3			>400	Within 0.25 mile	Within 0.25 mile			
4					Visible from Interstate	Within 0.25 mile and 15 min service	At major roadway junction	State/Municipally owned, no physical/ environmental constraints
5	Yes	>75%		On existing transit route				



RECOMMENDATIONS

Based on the thorough investigation of the current VTrans P&R Program, national best practices, and current and future capacity modeling, the following recommendations are made:

- **Program Organization & Partners Group** – In order to collaboratively move forward with the recommendations identified in this Plan, the Program would benefit from quarterly meetings with representatives from the following Agency bureaus/sections: Asset Management & Performance; Maintenance Operations; Municipal Assistance; Transit; and Policy & Planning. In addition, “at-large” members from Transportation Management Associations, VAPDA, Local Motion, and other special interest groups could be brought in at strategic intervals.
- **Program Guidance** – The Partners Group should develop formal policies, procedures, and guidance to define how the Park-and-Ride program will operate. These would include outlining the appropriate roles, responsibilities, communication chains and funding streams. In addition, program goals and objectives (program metrics) should be established. The Partners Group should also develop standards regarding installation, inventorying, and maintenance basic design features (i.e. signage, lighting, shelters where appropriate).
- **Facility Expansion and Siting Process** – A quantitative capacity expansion and new facilities siting methodology was developed as a part of this plan – essentially focusing resources in over-capacity catchment areas and population centers greater than 10 miles from existing facilities. The Partners Group should continue to refine these tools as needed and ensure that they are effectively incorporated as a part of the Program Guidance. They should also develop supportive permitting rules to encourage private sector contribution to such facilities if proposed development triggers a specific threshold of trip generations. RPCs should be utilized for their local knowledge, as appropriate, in the early phase of the project definition process. In addition, once accurate data is readily available, maintenance and operations considerations should be considered in the revised project scoping process.
- **Operations and Maintenance** – Current MOB budgets are insufficient to provide the appropriate level of customer service – inclusive of ADA compliance. MOB and AMP will track costs more closely over the next 12 months to determine accurate operations and maintenance costs. Based on this data and agreed upon standard levels of service and preventative maintenance, budgetary shortfalls will need to be identified. In addition, such costs should be incorporated into the facility expansion and siting process.
- **Data Management** – The Partners Group should standardize future data collection and expand data collected beyond annual count data to include facility condition data as well as operations and maintenance costs.

- **Program Priorities** – The Partners Groups should continue to refine guidelines that will implement the identified recommendations. Specifically:
 - (1) P&R facility priorities for expansion and new facility siting shall be based on the prioritization methodology.
 - (2) Highway projects shall continue to be evaluated for opportunities to establish P&R lots.
 - (3) The P&R Program shall prioritize medium (40-79 space) and large (80+ space) lots.
 - (4) A P&R Facility Design Guidelines shall be developed and will identify required features such as signage, lighting, transit shelters where appropriate, and pedestrian crossings.
 - (5) Data collection inclusive of site conditions, operation and maintenance costs and level of service, and utilization rates will be standardized.

