BAB VI

PENUTUP

6.1. Kesimpulan

Berdasarkan evaluasi yang telah di lakukan pada terminal Prambanan dan taman parkir Ngabean, maka dapat disimpulkan bahwa:

1. Lokasi parkir
   - Terminal Prambanan berada di lokasi yang strategis sebagai fasilitas *park and ride*.
   - Jarak *park and ride* taman parkir Ngabean yang terlalu dekat menyebabkan fasilitas ini tidak terlalu berpengaruh dalam mencegah atau meminimalisir jumlah kemacetan yang terjadi.
2. Fasilitas parkir
   - Terminal Prambanan dan taman parkir Ngabean tidak menyediakan lokasi parkir untuk mobil.
   - Kedua fasilitas park and ride ini tidak menyediakan fasilitas rambu parkir.
3. Fasilitas penunjang
   - Pos petugas yang dibangun serta loker yang berada didaerah lokasi parkir tidak di gunakan sebagaimana mestinya sehingga kondisinya semakin tidak terawat.
   - Tidak disediakan informasi jadwal keberangkatan bus transjogja.
   - Tidak tersedianya alat-alat kebersihan dan perkerasan.

4. Fasilitas *security and safety*
    - Tidak ada pengaman kunci bagi jenis kendaraan sepeda yang diparkir dikawasan *park and ride*.
    - Tidak disediakan pintu otomatis untuk mengontrol setiap aktifitas didaerah *park and ride*.
5. Pengoperasian
    - Tidak ada pekerja yang ditugaskan untuk menjaga keamanan maupun untuk merawat lingkungan *park and ride*.

6.2. Saran

Salah satu kendala dalam pengoperasian *park and ride* sebagai prasarana penunjang angkutan umum adalah penyediaan fasilitas yang kurang memadai dan letak lokasi yang kurang strategis dalam memenuhi tujuan dari penggunaan *park and ride* ini sendiri. Mengacu dari semua permasalahan yang telah di paparkan, adapun beberapa usul dan saran yang dapat di berikan bagi pihak pengelola sebagai masukan dalam mengembangkan fasilitas park and ride ini menjadi lebih baik kedepannya.

1. Pemerintah secepatnya membentuk bagian khusus dalam dinas perhubungan yang berperan mengatur segala semua kegiatan yang berkaitan dengan *park and ride*.
2. Pemerintah secepatnya membuat peraturan khusus tentang *park and ride* sebagai acuan dalam pembangunan, pengoperasian maupun pemeliharaan fasilitas. Apabila telah berjalan dengan baik, maka park and ride ini dapat

memberikan kontribusi yang baik bagi kondisi lalu lintas di daerah Yogyakarta.

3. Pemerintah mengembangkan fasilitas *park and ride* yang telah di bangun seperti terminal Pramabanan dan taman parkir Ngabean sehingga menjadi daya tarik bagi masyarakat untuk menggunakan fasilitas ini.
4. Pemerintah memperbaiki fasilitas angkutan umum yang digunakan sebagai transportasi lanjutan, dengan membangun jalur khusus agar masyarakat merasa perlu menggunakan fasilitas ini karena dapat menghemat waktu dibandingkan menggunakan kendaraan pribadi.

DAFTAR PUSTAKA

Asapa, Andi Guntur. 2014. "*Park and Ride* Sebagai Bagian dari Pelayanan Kereta Api Perkotaan Bandung". *Jurnal Perencanaan Wilayah dan Kota*. Vol. 25. No. 2. Hal. 157-173.

Bos, D. M. 2004. *Changing Seats: A Behavoiural Analysis of P & R Use*. Delft University Of Technology.

Damanik, R. 2006. "Analisis Manfaat Bagi Pengguna Sistem *Park and Ride* Sepeda Motor di Jabodetabek". *Tesis*. Program Magister Bidang Ilmu Teknik, Universitas Indonesia.

Dinas Perhubungan, Komunikasi dan Informatika. 2014. *Feasibility Study Park and Ride*. Yogyakarta : Pemerintah Daerah Istimewa Yogyakarta.

Gawe,Y.2017. Evaluasi Penataan Parkir di Malioboro. Yogyakarta: *Tugas Akhir Universitas Atma Jaya Yogyakarta.*

Palupiningtyas, S.E. 2016. Kriteria fasilitas Park and Ride Sebagai Pendukung Angkutan Umum Masal Berbasis Jalan (Transjakarta). Jakarta: Selenia Ediyani Palupiningtyas

Jenderal Perhubungan Darat. 1996. Teknis Penyelenggaran Fasilitas Parkir. 272/HK.105/DRJD/96. Jakarta: Direktorat Jenderal Perhubungan Darat.

Kementerian Negara Lingkungan Hidup. 2009. *Kota di Persimpangan Jalan: Pedoman Perancangan Strategi Pengendalian Emisi dari Sektor Transportasi Jalan di Kawasan Perkotaan*. Jakarta: Kementerian Negara Lingkungan Hidup.

Max, T. 2013. *Pengertian Angkutan Umum*. Kampus Teknik Sipil Indonesia. http://kampus-sipil.blogspot.co.id/2013/04/pengertian-angkutan-umum.html, diakses pada tanggal 19 Maret 2018.

Mustafa, W. M. 2011. *Manajemen Kebutuhan Transportasi (Transport Demand Management) Sebagai Kebijakan Pelayanan Transportasi Kota*. Makassar :Fakultas Teknik Universitas "45"

O'Flaherty, C. 1997. *Transportation Planning and Traffic Engineering*. London: Arnold Publishing.

Parkhurst, G. 1995. *Park and ride: could it lead to an increase in car traffic?*. Tansport Policy.vol 2. Hal.15-23.

Peraturan Daerah Provinsi Daerah Istimewa Yogyakarta. 2010. Rencana Tata Ruang Wilayah Provinsi Daerah Istimewa Yogyakarta Tahun 2009 – 2029. Yogyakarta: Pemerintah Provinsi Daerah Istimewa Yogyakarta.

Peraturan Pemerintah Nomor 72. 2014. *Angkutan Jalan*. Jakarta: Pemerintah Republik Indonesia.

Peraturan Pemerintah Nomor 32. 2011. *Manajemen dan Rekayasa, Analisis Dampak, Serta Kebutuhan Lalu Lintas*. Jakarta: Pemerintah Republik Indonesia.

Putra, Aditya Permana. 2013. "Stasiun Besar Cikarang di Kabupaten Bekasi. Konsep: *Park and Ride*". *Skripsi*. FT, Arsitektur. Universitas Diponegoro Semarang.

Spillar, R. J. 1997. *Park-and-Ride Planning and Design Guidelines.* New York: Parsons Brinckerhoff Inc.

Transportation Reserch Board. 2004. Transit Cooperative Research Program (TCRP) Report 95 Chapter 3. Park and Ride/Pool Traveler Response to Transportation System Changes. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c3.pdf , diakses pada tanggal 19 Maret 2018.

Undang-Undang Nomor 22. 2009. *Lalu Lintas dan Angkutan Jalan*. Jakarta : Pemerintah Republik Indonesia.

Victoria Transport Policy Institute. 2010. *Park & Ride, Convenient Parking For Transit User*s. TDM Encyclopedia. Diperoleh dari https://www.vtpi.org/tdm/tdm27.htm, diakses pada tanggal 19 Maret 2018.

Widiatmoko, Bagus. 2016. "Evaluasi Penerapan Sistem Park And Ride Yang Terintegrasi dengan Bus Trans Jogja di Perkotaan Yogyakarta". *Skripsi*. Perencanaan Wilayah dan Kota, Universitas Gajah Mada Yogyakarta.

Yusfida, I. 2014. Manajemen Park and Ride di Stasiun Kereta Api Pada Perkeretaapian Jabodetabek. SAPPK ITB.

Yusfida, Irma dan Ibnu Syabri. 2015. "Model Kerjasama Pengembangan Fasilitas *Park and Ride* di Stasiun Kereta Api Koridor Tanah Abang - Serpong". *Jurnal Perencanaan Wilayah dan Kota*. SPAKK ITB No. 1.

Cherrington L. K, Brooks Jonathan, Cardenas J, Galicia L.D, Hansen Todd, Miller Kristi, Walk M.J. 2017. " *Decision-Making Toolbox to Plan and Manage Park-and-Ride Facilities For Public Transportation*". Texas: National Academy of Sciences.

Bolger Dan, Colquhoun David, Morral John. 1992. "*Planning and Design of Park and Ride Facilities for the Calgary Light Rail Transit System*". Calgary: Transportation Research Board.

Lampiran 1: *Park and Ride Regulation*

Decision-Making Toolbox to Plan and Manage Park-and-Ride Facilities for Public Transportation:Guidebook on Planning and Managing Park-and-Ride

Introduction

This summary provides an overview of *TCRP Research Report 192: Decision-Making Toolbox to Plan and Manage Park-and-Ride Facilities for Public Transportation: Guidebook on Planning and Managing Park-and-Ride.* This guidebook is a route map for planning and managing park-and-ride facilities—from concept to day-today management, covering key themes such as design, implementation,operation, and maintenance. Park-and-ride facilities for public transportation provide numerous benefits to transit agencies and communities. Park-and-ride benefits include access to transit as an alternative to driving alone, concentration of rider demand to enable transit service in low-density areas, convenient meeting points for carpools and vanpools, reduced vehicle miles traveled and associated vehicle emissions, reduced parking demand in central business districts and other destination activity centers, and increased transit ridership for more productive transit services. A companion document, *TCRP Web-Only Document 69,* includes two volumes.

Volume 1 summarizes a literature review, an inventory of park-and-ride facilities in the United States, and a scan of the state of the practice. Volume 2 provides 16 case studies of transit agencies in the United States and Canada that demonstrate park-and-ride planning and management trends, best practices, and strategies.

S u m m a r y

TCRP Research Report 192: Decision-Making Toolbox to Plan and Manage Park-and-Ride Facilities for Public Transportation: Guidebook on Planning and Managing Park-and-Ride is a resource for transit staff seeking to better plan and manage park-and-ride facilities for public transportation by incorporating improved strategies and best practices.

What Is Park-and-Ride?

Park-and-ride facilities provide people using public transportation with a parking location,drop-off point, or transfer point. A prototypical trip involving park-and-ride begins with the customer leaving his or her origin, driving to the park-and-ride facility, parking, riding public transportation, alighting, and walking to his or her destination. However, the traveling public's actual trips involving park-and-ride facilities vary greatly from this example. Some customers incorporate biking into their trip, while others carpool or vanpool. Some customers do not park but are dropped off. Some commuters must transfer, and others have a direct, express trip. The nexus of parking and public transportation makes park-and-ride a unique form of public transit. The design and characteristics of park-and-ride facilities can vary immensely. Facilities range from small surface lots to multilevel parking structures in a transit-oriented development (TOD). The type of public transportation may vary too. Park-and-ride facilities in the United States and Canada complement local bus, commuter bus, bus rapid transit, light rail, commuter rail, heavy rail, and ferry services.

What Are the Benefits of Park-and-Ride?

Park-and-ride facilities for public transportation provide numerous benefits to transit agencies and communities. In 2004, the Transportation Research Board produced *TCRP Report 95: Traveler Response to Transportation System Changes Handbook* (Turnbull et al. 2004). Chapter 3 of this report documents traveler responses by type of park-and-ride facility. This document describesthe following benefits associated with park-and-ride facilities for public transportation service:

- Provide alternatives to driving alone.
- Concentrate transit rider demand to enable transit service in low-density areas.
- Provide access to rail and commuter bus transit services.
- Provide convenient and safe meeting points for carpool and vanpool users.
- Reduce vehicle miles traveled and thereby reduce vehicle emissions.
- Manage the shift of parking away from the central business districts (CBDs) and other dense activity centers.
- Relieve neighborhoods of problems caused by informal parking.

Other benefits include:

- Provide a reliable location for people to leave their personal vehicles while using public transportation—facilitating transitions from single-occupancy travel to mass-transit options and thereby reducing traffic congestion.
- Facilitate opportunities for drop-offs and pick-ups by family members (kiss-and-ride) or ride sourcing companies (e.g., Uber or Lyft).
- Increase the productivity of bus operations as measured by ridership per service hour.
- Customize service. Transit agencies can design services and facilities to meet the specific needs of the transit agency's customers.

- Enhance regional coordination. In many areas, park-and-ride facilities exist because of shared-use agreements with local/regional governments and are included in regional transportation planning.
- Attract nontraditional transit riders. Beyond service in low-density areas, park-and-ride service also provides a one-seat service that has the potential to attract riders who might otherwise choose to drive.
- Increase ridership on other modes via transfer. Park-and-ride service connects riders with other transit options, such as CBD circulators or local bus service, and helps transit agencies increase ridership on other modes.
- Provide convenient access at transit stations that includes walking, biking, and shared vehicles to support interest in a sustainable and/or urban lifestyle.

Types of Facilities

The designs and characteristics of park-and-ride facilities can vary immensely. Facilities range from small surface lots to multilevel parking structures in a transit-oriented development. The type of public transportation may vary too. Park-and-ride facilities in the United States and Canada complement local bus, commuter bus, bus rapid transit, light rail, commuter rail, heavy rail, and ferry services. The following examples highlight the variety of park-and-ride facilities and related public transportation services:

- The park-and-ride program of Bay Area Rapid Transit (BART) is a key mode of access to rail stations. BART has parking facilities at 33 of 45 stations (31 have long-term parking), with 46,735 spaces total. Parking is expensive and scarce in the region, increasing pressure on park-and-ride facilities. Nearly all of BART's parking facilities are at capacity every weekday, compelling the transit agency to take a variety of measures to manage parking.
- Houston METRO began operating a network of large park-and-ride facilities combined with high-occupancy vehicle (HOV) lanes in the 1980s. Houston METRO provides parking for local bus, commuter bus, and light rail. Thirteen transit centers and 24 dedicated park-andride facilities contain 34,882 parking spaces.
- The Connecticut Department of Transportation (ConnDOT) began including park-and ride facilities in most transportation projects affecting highway intersections in the 1970s to facilitate carpool, vanpool, and transit use during periods of fuel shortage. ConnDOT nowhas 237 park-and-ride facilities with 34,021 parking spaces:
  – Eight have both express and local bus service.
  – 37 have express bus service only.
  – 37 other facilities have local bus service only.
- ConnDOT recently began operating CTfastrak bus rapid transit in a 9.4-mile corridor with 10 stations and 1,614 parking spaces.
- Woodburn Transit System, a non-urbanized system in Oregon, constructed one park-and ride facility with 133 parking spaces to facilitate local, intercity, and future regional bus route connections.

Design Considerations

Transit agencies must evaluate many design considerations when constructing a new park-and ride facility, expanding or renovating existing facilities, or evaluating the design of leased facilities.Transit agencies such as Denver RTD and Sound Transit (Seattle) have developed design guidelines specifically addressing park-and-ride facilities. This section outlines the most common design considerations that transit agencies consider during the planning of a park-and-ride facility. These include:

- Types of parking required.
- Characteristics of parking facilities.
- Urban and landscape design elements.
- Passenger amenities.
- Parking amenities.
- Electrical systems and utilities.
- Safety and security systems.
- Wayfinding signage and markers.
- Vehicle and access variables.

Types of Parking Required

Americans with Disabilities Act Parking

The ADA requires that parking accommodations be made for individuals with disabilities. ADA parking and drop-off areas should be located near the shortest direct routes to the transit entry. ADA parking availability should follow all local, state, and federal laws. Table 6 shows the minimum ADA standards as of 2016.

High-Occupancy Vehicles

Some transit agencies reserve parking spots for carpools and vanpools. Typically, transit customers apply for a carpool/vanpool permit, which guarantees a space in the reserved spots. However, some transit agencies, such as TriMet in Portland, have a first-come, first-served policy regarding the number of carpool parking spots available

.

Passenger Pick-Up and Drop-Off

Designated passenger pick-up and drop-off areas are common for many park-and-ride facilities. Access to these areas should not be routed through parking lots because of the frequent use for short-term parking. Adequate space for pick-up and drop-off areas for kiss-and-ride, taxis,and ridesourcing companies should be a consideration, especially for pick-ups when the wait times could be longer. Passenger loading zones should apply ADA standards to provide enough space for loading and unloading persons with disabilities.

Bicycles

Bicycle access and parking should be incorporated into the types of parking needs for park-and-ride facilities. Bicycle racks and lockers can help to encourage multimodal transport to and from the park-and-ride facility.

Carsharing Services
Several transit agencies, such as CTA and WMATA, reserve spots for carsharing services.These services provide another option for transit customers to complete the first-mile/last-mileportions of their trips.

Single-Occupancy Vehicles
The most common type of parking provided at park-and-ride facilities is for single-occupancy vehicles (SOVs). However, transit agencies may prioritize other access modes on the basis of factors such as limited land availability or context (urban versus suburban).

Characteristics of Parking Facilities
Transit agencies must determine whether a surface lot or parking structure is more appropriate.This decision is based on many planning factors, such as cost, land availability, and expected customer demand. The facility should be designed to accommodate potential opportunities for expansion or other adaptive reuses
.
Surface Lot
Surface lots are usually found in less-dense areas, typically suburban or peripheral areas. These park-and-ride lots involve lower capital expenses than parking structures. They also reserve land for constructing a parking garage in the future if expanded parking capacity is needed. According to case study transit agencies, surface parking design and construction costs (i.e., excluding the cost of the land) are approximately $8,000 to $11,700 per parking space.

Parking Structure
Parking structures (parking garages) involve more capital costs and have a longer construction time frame. These facilities are typically found where reduced land availability, high land values, or both make it economically sound to construct structured parking. Figure 3 shows a structured park-and-ride facility in Pittsburgh.Pedestrian movement inside the parking garage is an important design consideration because elevators and accessible walkways become essential for ADA accessibility. Typical parking structure construction costs vary by region. Table 7 shows median construction costs for selected cities, with a range of $16,000 to $25,000 per parking space. As of 2016, the national median cost of a structured parking garage was about $19,000 per parking space, or $57 per square foot, excluding land costs.

Underground Parking
Where land costs exceed about $100 per square foot, underground parking may be more economicalthan a surface lot (see Figure 2 in Chapter 3). An underground parking garage may be part of a larger development (e.g., DART Cityplace/Uptown Station in Dallas).

On-Street Parking
BART has created a partnership with the City of Hayward and a private developer to convert a surface park-and-ride facility to a TOD. Rather than create additional new parking, the City of Hayward striped and numbered on-street parking for the purpose of park-and-ride via BART.The transit rider parks on-street in a numbered space, then enters the BART platform area and pays for the space at an add fare/parking payment station.

Passenger Amenities
Passenger amenities vary by park-and-ride facility type. Shared-use lots, for example, typically do not incorporate many amenities. The park-and-ride facility typology will also affect the number of passenger amenities available. Typically, the most common passenger amenities include the following.

Enclosed Covered Waiting Areas or Shelters
Covered waiting areas or bus shelters are common at most park-and ride facilities due to the high volume of passengers served. Some transit agencies may have specific branding for park-and-ride areas.

Trash Receptacles
Trash receptacles are common at most park-and-ride facilities. A stationary trash receptacle can help reduce litter around passenger waiting areas. See-through trash receptacle designs can reduce concerns about security risks.

Bicycle Racks/Lockers
Bicycle racks are common at many park-and-ride locations. In addition, bicycle lockers or enclosed bicycle parking can provide more protection and security for bikes. Examples of transit agencies that rent bike lockers to park-and-ride customers are Calgary Transit, Denver RTD,and Houston METRO.

Amenities at Larger Transit Centers
Larger transit centers may provide additional amenities, such as the following.

On-Site Station Personnel. Larger transit centers may have on-site personnel available to accommodate customer service needs. Personnel may also be part of the transit agency police department. Providing on-site staff offers more security, which can also allow for amenities such as restrooms and vending machines, but adds to the facility's operating costs as well.

Vending Machines and Concessions. Vending machines are available at some park-andride transit centers. Some transit centers may even have concessions or food vendors available. However, providing food options can potentially cause conflict if transit agency policies do not allow food on transit vehicles.

Restrooms. Public restrooms are usually only considered if on-site personnel or security is provided. Restroom facilities specifically for transit agency employees may also be considered.Several transit agency representatives interviewed in the

case studies cited security concerns as a reason for not providing public restrooms. Restrooms also require additional and continual maintenance and upkeep.

Indoor Waiting Areas. Some park-and-ride transit centers may provide enclosed airconditioned or heated waiting areas, depending on the climate.

Public Artwork. Public art can help to create a sense of identity for the park-and-ride facility and incorporate it into the surrounding community.

Parking Amenities

Specific amenities for parking may include the following.

Covered Parking

This amenity is provided by structured parking facilities. Surface-level parking lots are not likely to incorporate covered parking spots, although some transit agencies in hot climates have provided covered parking canopies.

Reserved Parking for Carpools

Providing reserved carpool parking can help reduce the number of single-occupancy vehicles traveling to the park-and-ride facility. Reserved carpool parking spaces provide an incentive to carpool by:

- Locating the spaces in convenient locations relative to the transit stop or station entrance.
- Potentially guaranteeing the availability of a parking space at the station (although not all transit agencies with carpool parking do so).

Parking for Commuters to Transfer Carpools/Vanpools

Additionally, transit agencies may sponsor and coordinate commuter options such as carpooling and vanpooling. Transit agencies can offer parking spaces for commuters transferring to carpools and vanpools. Transit agencies may not permit parking for commuters who transfer to carpools and vanpools when parking capacity for daily transit riders is a higher priority.

Electric-Vehicle Charging Stations

Electric charging stations are available at some park-and-ride facilities to service electric automobiles. These spots should only apply to vehicles that are purchasing electricity and not act as reserved spots for electric vehicles.

Carsharing Services

Carsharing services can provide an option for park-and-ride customers who either do not own a car or do not want to park their vehicle at the park-and-ride facility. Such services also help facilitate first-mile and last-mile connections, helping to create a better, integrated transit system.

Electrical Systems and Utilities

Electrical and lighting panels should not be publicly accessible. Light fixtures should be accessible for maintenance throughout all parts of the day. For example, a structured light fixture would be best placed in the middle aisle of a parking garage ramp rather than over a parking space, where an automobile might block access. Storm water and utility considerations are necessary with all park-and-ride facilities. Transit agencies should make sure that drainage designs are in accordance with local jurisdictional permitting. Mechanical, plumbing, and fire protection systems need to comply with local jurisdictional regulations.

Safety and Security

Safety and security are important design considerations for park-and-ride facilities.

Safety

Passengers need to be able to safely access the transit station from the parking area and safely return. A number of design features, such as walkways, barriers, and pavement markings, can delineate pedestrian paths. These paths should avoid crossing vehicular traffic paths to the extent possible.

Security

Some transit agencies, such as DART, Los Angeles County Metropolitan Transportation Authority (LA Metro), and Houston METRO, have police officers that are certified in evaluating crime prevention through environmental design (CPTED). CPTED design elements include proper lighting, natural surveillance, and visible walkways. For example, DART completes a CPTED assessment for each of the transit agency's park-and-ride facilities every 3 years. The assessment details any improvements that need to be made to the facility to address CPTED considerations. APTA published a recommended practice, Crime Prevention Through Environmental Design (CPTED) for Transit Facilities (2010), as part of the APTA Standards Development Program.According to the APTA guidance, accepted CPTED industry strategies that apply to park-andride facilities include the following:

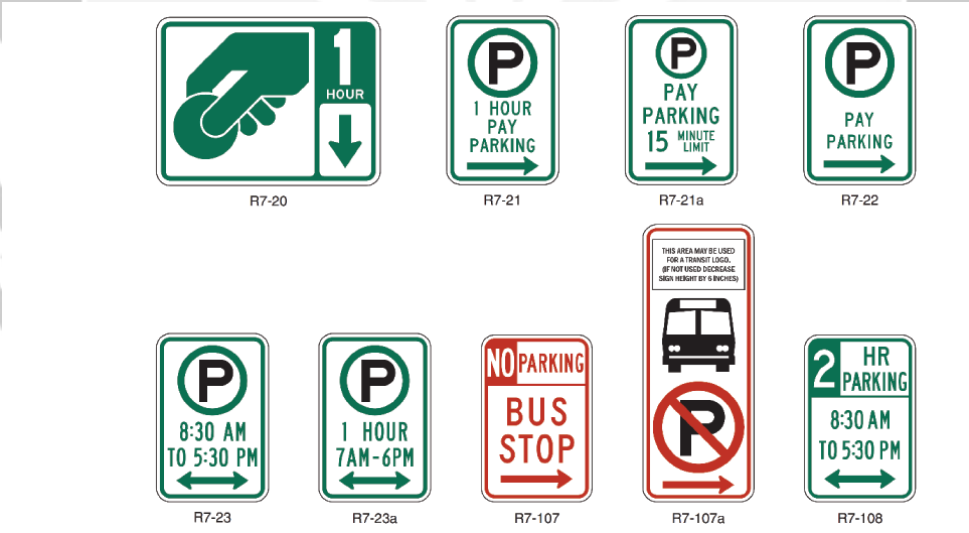
- **Natural surveillance.** This strategy involves reducing crime by decreasing target opportunities in a park-and-ride by placing physical features, activities, and people to maximize visibility.
- **Natural access control.** Judicial placement of entrances, exits, fencing, landscaping, and lighting will help to channel people into, alongside, or out of the park-and-ride and deter entry elsewhere along the boundary. This strategy denies access to crime targets and creates a perception of risk for adversaries.

Territoriality. Territoriality notifies users and non-users of the boundaries of the park-andride. Posted notices create a psychological deterrent to crime by notifying users of the park-and-ride facility that they are being watched.

- **Activity support.** By encouraging authorized activities in public spaces, the community and transit agency ridership understand the facility's intended use. Criminal acts are discouraged.
- **Maintenance.** Care and upkeep demonstrate expression of ownership for the intended purpose of the area. A lack of care indicates loss of control of the park-and-ride and can be a sign of tolerance for disorder. Establishing care and maintenance standards preserves the intended use of the park-and-ride facility (APTA 2010).

Wayfinding Signage and Markers

Wayfinding signage and markers are an important element of park-and-ride facilities. Signage and markers should be consistent with transit agency marketing strategies and may include specialized signage based on community or jurisdictional guidelines. In addition to transit-agency–based signage, wayfinding symbology should follow the *Manual on Uniform Traffic Control Devices* (MUTCD) published by the FHWA (2012). Figure 4 shows an example of parking signage in the MUTCD.



Access Within Park-and-Rides

Access within the park-and-ride should be organized so that transit buses and cars can safely maneuver in the facility without interference. Marked pedestrian and bike paths are important to keep traffic flows together and interfere minimally with automobile traffic. *TCRP Report 153: Guidelines for Providing Access to Public Transportation Stations* (Coffel et al. 2012) includes the following suggestions and strategies for creating appropriate access points for vehicles and pedestrians:

- Circulation patterns should be clear and consistent. Drivers should be confronted with only one decision at any given time.

- The capacity of ingress and egress points should be adequate.
- Sufficient queue storage space should be provided on parking access roads.
- Transit vehicles should have physically separated roadways and should not be required to use parking lanes.
- Turning radii are typically governed by bus turning geometry.
- Parking aisles should be oriented so pedestrians can use them to reach the transit station.
- Design should include convenient access to collect parking fees.
- Important access design elements include security measures for proper lighting, natural surveillance, and visible walkways. In colder climates, facility design may need to incorporate snow removal. Avoiding obstacles (such as wheel stops) for snow plows and having sufficient space available on-site to store snow can alleviate some maintenance concerns.

First-Mile/Last-Mile Access to Park-and-Rides

Park-and-ride facilities can provide opportunities to connect the community to transit through first- and last-mile amenities. Transit agencies can design priority access for local bus feeder services to the park-and-ride. Other amenities might include bicycle lockers for private bicycles, bikeshare or carshare spaces, and designated spaces for taxicabs and ridesourcing companies.Transit services with park-and-ride can provide an emission reduction benefit as compared to commuters driving single-occupant vehicles to their destinations. First- and last-mile access to park-and-ride (e.g., local bus feeder service or bicycling) can further reduce overall emissions. As presented in Figure 5, LA Metro and Southern California Association of Governments' (2014) First Last Mile Strategic Plan and Planning Guidelines presents data from Chester et al. (2013) to illustrate the reduction of carbon dioxide vehicle emissions associated with alternative first- and last-mile modes of access to transit. Adequate landscape and urban design outside of the park-and-ride facility will ultimately affect the customer's first- and last-mile experience.Transit agencies can work with local jurisdictions to create designs such as pedestrian and bike paths leading to and from park-and-ride facilities that connect to other places of interest.

Travel Time Information

Signage increasingly includes real-time travel time information along the commute corridor. A sign reporting travel time may be posted at the entrance to a park-and-ride facility.

Customer Waiting Areas. If a transit agency provides climate-controlled waiting areas,these structures and components will produce additional ongoing O&M requirements. Utilities (including electricity, natural gas, or another energy source) may be needed for heating and cooling the facility. In addition, these waiting areas require regular cleaning, replacement of components (e.g., doors and windows), painting and other weatherproofing, and so forth. In addition to routine operations and maintenance, transit agencies should include safety and security of waitingareas as an additional facet of the overall park-and-ride. Policies and

procedures may be needed to ensure that waiting areas are only accessible during service hours and are only used by transit customers.

Restrooms. Although restrooms are a desirable facility from the customer viewpoint, restroombring a set of O&M challenges. If transit agencies decide to provide permanent restrooms (i.e., not portable restrooms), these facilities will require running water, climate control, lighting,supplies, and frequent cleaning and maintenance. Restrooms may be public or accessibleonly to transit agency employees.

Lampiran 2: Keputusan Direktur Jenderal Perhubungan Darat

KEPUTUSAN DIREKTUR JENDERAL PERHUBUNGAN DARAT
NOMOR : 272/HK.105/DRJD/96
TENTANG
PEDOMAN TEKNIS PENYELENGGARAAN
FASILITAS PARKIRDIREKTUR JENDERAL PERHUBUNGAN DARAT

1. pembangunan
   macam-macam pertimbangan pembangunan fasilitas parkir yaitu :
   a. Ruang bebas Ruang bebas arah lateral ditetapkan pada saat posisi pintu kendaraan dibuka, yang diukur dari ujung terluar pintun ke badan kendraan parkir yang ada disampingnya.
      Penentuan satuan ruang parkir (SRP) dibagi atas tiga jenis kendaraakendaraan parkir diberikan pada araha lateral dan longitudinal kendaraann:

Tabel 3.2. Penentuan Satuan Ruang Parkir (SRP)

Jenis Kendaraan	Satuan Ruang Parkir
Mobil penumpang untuk golongan I	2,30 x 5,00
Mobil penumpang untuk golongan II	2,50 x 5,00
Mobil penumpang untuk golongan III	3,00 x 5,00
Bus/truk	3,40 x 12,50
Sepeda motor	0,75 x 2,00

   b. desain parkir di badan jalan.
      Sudut parkir yang akan digunakan umumnya ditentukan oleh:
      1. lebar jalan
      2. volume lalu lintas
      3. karakteristik kecepatan
      4. dimensi kendaraan
      5. sifat peruntukan lahan sekitarnya dan peranan jalan yang bersangkutan.
2. pengoperasian
   Sesuai dengan Keputusan Menteri Dalam Negeri Nomor 61 Tahun 1993 tentang Pedoman Organisasi dan Tata Kerja Dinas Lalu-Lintas dan Angkutan Jalan Daerah Tingkat I dan Dinas Lalu-Lintas dan Angkutan Jalan Daerah Tingkat II, untuk menyelenggarakan fasilitas parkir dibentuk Unit Pelaksana Teknis Daerah (UPTD) Perparkiran pada Dinas Lalu-Lintas dan Angkutan Jalan Daerah Tingkat II.
   Dalam dtruktur organisasi UPTD, perparkiran mencakupi kegiatan sebagai berikut:

1. aspek administratif, yang mengurus hal-hal non teknis, perparkiran seperti personalia, keuangan dan umum.
2. aspek teknis operasional, yang mengurus hal-hal teknis perparkiran seperti perencanaan, pengoperasian dan pemeliharaan.
   Macam-macam pertimbangan pengoperasian parkir antara lain:
   a. penetapan tarif parkir
      Penetapan tarif parkir adalah salah satu cara pengendalian lalu lintas, perhintungan tarif parkir tidak didasarkan atas perhitungan pengembalian biaya investasi dan operasional, juga tidak semata-mata untuk memperoleh keuntungan material dana tau finansial.
      Penetapan tariff parkir dilakukan untuk mengendakan lalu lintas melalui pengurangan pemakaian kendaraan pribadi sehingga mngurangi kemacetan di jalan. Melalui penetapan tariff sedemikian rupa, untuk besaran tarif tertentu diharapkan dapat mengurangi niat orang menggunakan kendaraan pribadi.
   b. tata cara parkir
      Dalam melaksanakan parkir, baik pengemudi maupun juru parkir harus memperhatikan hal-hal berikut:
         1. batas parkir yang dinyatakan dengan marka jalan pembatas.
         2. keamanan kendaraan, dengan mengunci pintu kendaraan dan memasang rem parkir.

      Sesuai dengan jenis fasilitasnya, tata cara parkir adalah sebagai berikut:
         1. fasilitas parkir tanpa pengendalian parkir:
            a. dalam melakukan parkir, juru parkir dapat memandu pengemudi kendaraan.
            b. juru parkir memberi karcis bukti pembayaran sebelum kendaraan meninggalkan ruang parkir.
            c. juru parkir harus mengenakan seragam dan identitas.
         2. Fasilitas parkir dengan pengendalian parkir (menggunakan pintu keluar/masuk):
            a. pada pintu masuk, baik dengan petugas maupun dengan pintu otomatis, pengemudi harus mendapatkan karcis tanda parkir, yang mencantumkan jam masuk (bila diperlukan, petugas mencatat nomor kendaraan).
            b. dengan dan tanpa juru parkir, pengemudi memarkirkan kendaraan sesuai tata cara parkir.
            c. pada pintu keluar, petugas harus memeriksa kebenaran karcis tanda parkir, mencatat lama parkir, menghitung tarif parkir sesuai dengan ketentuan, menerima pembayaran parkir dengan menyerahkan karcis bukti pembayaran pada pengemudi.
3. pemeliharaan
   a. pelataran parkir
      Untuk menjamin agar pelataran tetap dalam kondisi baik, pemeliharaab dilakukan dengan cara:
         1. sekurang-kurangnya setiap pagi hari pelataran parkir dibersihkan agar bebas dari sampah dan air tergenang.

2. Pelataran parkir yang sudah berlubang-lubang atau rusak ditambah atau diperbaiki.
3. Secara rutin pada saat tertentu, pelapisan (*overlay*) pada perkerasan pelataran perlu dilakukan.

b. marka dan rambu jalan
Marka dan rambu jalan berfungsi sebagai pemandu dan penunjuk bagi pengemudi pada saat parkir, marka dan rambu jalan harus dijaga agar tetap dapat terlihat jelas.

c. fasilitas penunjang parkir
fasilitas penunjang parkir yang memerlukan pemeliharaan adalah:
1. pos petugas
2. lampu penerangan
3. pintu keluar dan masuk
4. alat pencatat waktu elektronis
5. pintu elektronis pada fasilitas parkir dengan pintu masuk otomatis.