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Project Final Report

LANSING TRANSIT COORDINATION STUDY

(Michigan DOT Project No. 93-0858 CAB / E07543)

Prepared for: Urban and Public Transportation Division
Michigan Department of Transportation
Lansing, Michigan

Prepared by: Gorove/Slade Associates, Inc.
Washington, DC

In Association With:

Ann Arbor Planning Associates, Inc.
Chance Management Advisors, Inc.
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EXECUTIVE SUMMARY

This transportation study grew out of a desire to examine the existing public transportation systems serving the Lansing/East Lansing/Michigan State University (MSU) area. Major issues to be addressed included: (1) defining the appropriate level of public transportation service to be offered, (2) the potential for improved service integration amongst the various service providers, and (3) the development of appropriate local and intercity ground transportation terminals. An additional area of concern relates to the significant decline in ridership which has been experienced in the last few years by the Capital Area Transportation Authority (CATA) on its East Lansing area routes.

In order to effectively address these various issues, the Michigan Department of Transportation (MDOT), in cooperation with CATA and MSU, initiated what came to be termed the **Greater Lansing Public Transportation Coordination Study**. This project was conducted in several distinct, but closely related tasks, including:

- The compilation of background data describing current transportation conditions in the study area, with a principal emphasis on the use of existing intercity carriers by travellers to and from East Lansing community, and the use of CATA and MSU buses for local travel to and from the MSU campus area;
- An examination of alternative sites for both potential on-campus CATA/MSU transfer facilities and improved intercity terminal facilities; and
- An examination of similar situations nationwide through a survey of university/public transit relationships in other communities and an assessment of the degree to which this experience might be transferrable to the situation under study.
- An examination of the possible causes for the recently observed declines in ridership on the CATA system routes in the East Lansing area and developing recommendations to remove obstacles and provide incentives and services to recapture ridership. This would include improved coordination between the MSU and CATA transit services.

Supplementing the overall leadership and direction provided by MDOT, CATA, and MSU, active participation throughout the conduct of this planning effort was provided by a wide range of public and private sector representatives, particularly including the City of East Lansing, Amtrak, Greyhound, Indian Trails Bus Lines, the Capitol City Airport Authority, and the Capital Area Rail Council.

The resulting technical recommendations fell into two areas:

1. CATA / MSU Service Integration
2. Intercity Terminal Facilities

The key elements associated with each of these two topical areas are presented below.

CATA / MSU Service Integration:

Based on an examination of various studies previously undertaken by CATA on rider and non-rider travel characteristics, fare elasticity studies, current travel patterns in the East Lansing area, and an assessment of the manner in which other university communities have addressed similar issues and concerns, a series of recommended physical and operational changes to the current CATA and MSU bus operations in the East Lansing area have been identified. The most important of these are as follows:

- Implementation of a reduced student fare by CATA for all MSU and other college and university students in the CATA service area.
- Construction of a consolidated, on-campus transfer center, approximately 5,500 square feet in size, for use by both the CATA and MSU bus services in the northeast quadrant of the intersection of westbound Shaw Lane and Farm Lane, at an estimated cost of approximately \$1.8 million. (See Chapter 8, Pages 8-1 and 8-2).
- Restructuring of the current CATA routes in the East Lansing area to provide improved service to the University campus and the East Lansing community, including service into the interior of the campus proper, with headways more closely oriented to the MSU class schedule. (See Chapter 7, Pages 7-2 to 7-6).
- Creation of a "seamless" transfer policy between the MSU and CATA bus systems, so that a person paying an initial boarding fare on one system could transfer to the other without the requirement for a second boarding fare.
- Initiation of a vehicle replacement program for the current MSU campus bus fleet, virtually all of which are currently in excess of 20 years of age, at least 50 percent beyond the typical life expectancy of an urban transit bus of 12-15 years.

It is estimated that the implementation of this full set of recommendations will result in a significant increase in the MSU related ridership on the effected East Lansing CATA routes.

Intercity Terminal Facilities:

As a result of this study, a consensus was reached among the effected state and local governmental agencies and the involved private intercity carriers relative to the general location, size, and configuration of a new, consolidated intercity transportation terminal facility. This new multimodal terminal, which would be located west of Harrison Road and south of Trowbridge Road along the Grand Trunk Railroad mainline tracks, would replace the current "temporary" Amtrak station and bring together at a single location Amtrak, Greyhound, and Indian Trails Bus Lines intercity operations. This new facility would build upon the existing linkages between Amtrak's intercity rail service and the intercity bus operations provided by Greyhound and Indian Trails and provide a focal point for all intercity transportation services in the East Lansing area.

Inclusive of the provision of approximately 130 long term parking spaces, the total facility would occupy a site of approximately 3.5 acres in size. The terminal building itself, including ticketing and passenger waiting areas, a newsstand and a food service area, would encompass an area of approximately 6,500 gross square feet. The estimated cost of this facility, including land acquisition costs, is approximately \$4.5 million. The potential relocation of the Michigan State University support facilities currently located on a portion of this site may increase these costs. (See Chapter 8, pages 8-2 to 8-4).

Concluding Remarks:

Through the collaborative process followed during the course of this project, a series of capital and operational improvements to both the local CATA/MSU bus operations and the intercity passenger services in the East Lansing area have been identified. The implementation of the recommended actions will result in dramatic improvements to the existing facilities and services presently available to the travelling public in the area, while also supporting the overall transportation and developmental goals of Michigan State University, the City of East Lansing, the Capital Area Transportation Authority, and the Michigan Department of Transportation.

Chapter 1 - INTRODUCTION AND PROJECT OVERVIEW

The transportation system in the Lansing/East Lansing area today faces a number of important issues. These include: defining the appropriate level of public transportation service to be offered relative to Michigan State University (MSU), service integration amongst the various service providers, and the development of appropriate local and intercity ground transportation terminals. Moreover, there exists the desire to recapture those passengers who formerly used the Capital Area Transportation Authority (CATA) system for travel to and from the University.

In 1986, CATA completed a Comprehensive Operations Analysis (COA) which made recommendations for the rationalization of services to the campus. These recommendations were adopted but failed to stem the tide of declining passengers. At about the same time, significant fare increases were implemented, as well as procedures to tighten the system's fare collection procedures to minimize the potential for fare evasion.

In 1989, Michigan State University completed a Comprehensive Campus Parking and Transportation Study. That study determined that less than one-half of one percent of the 8,500 faculty and staff used either the CATA or MSU bus systems. It also determined that only about 3% of the 42,100 students made campus related trips by MSU Bus and only about 2% made such trips using CATA services. These rates of mode choice are extremely low, particularly in comparison to similar situations at other major universities in North America. The 1989 study recommended a series of ambitious multi-modal solutions to increase the then observed low levels of transit utilization, while recognizing the dominance of automobile usage and the prevalence of walking and cycling.

These statistics are a direct reflection of the unique and special characteristics inherent in the Michigan State University campus. Most noteworthy of these is the large number and percentage of students living on campus and the expanse and spatial distribution of university buildings. Other factors such as the 20,200 on-campus automobile parking spaces, the close proximity of private residences catering to the university population and the large number of special sport, educational and cultural activities or outlets contribute to this non-transit oriented environment.

The 1989 campus transportation study concluded with twenty-eight specific recommendations related to street, parking and transit improvements as well as travel demand management and transportation policy changes. These were all formulated with the view of achieving a better balance of mode choice and preserving the university community and environment. This

report, although not formally adopted, has been used as a guide since that time. Many of the transit related recommendations have not yet been formally acted upon by the University administration and may be inappropriate at this time.

Two off-campus, intercity transportation providers play a significant role in bringing students, staff and visitors to the university community. The first is Amtrak with its local station located on Harrison Road at the Trowbridge Road junction. Although only the Grand Trunk Railroad line is currently used for passenger transportation services, this site is also the intersection with the Chesapeake and Ohio Railroad (Chessie System) line. Amtrak currently provides thruway bus service to East Lansing from Toledo, Ohio and interconnected rail services west through to Chicago and east to Detroit, Washington D.C. and Toronto, Ontario. Through the Amtrak regional hub in Chicago, the entire nation can be accessed.

The second service provider is the inter-city bus industry. Greyhound Lines, Inc. and Indian Trails Bus Lines are the dominant carriers. Two bus terminals currently serve the area, one being located in downtown Lansing and the other in East Lansing on Grand River Avenue, immediately outside the campus. The downtown Lansing terminal is served by a number of CATA routes. The existing East Lansing Intercity Bus Terminal is served by CATA as an incidental component of the North Harrison (Route 19) service. The current Amtrak station is served as an incidental component of both the CATA and MSU route structures.

At the same time as these agency influences are occurring, a number of external factors are also playing increasing roles. The first is recent federal legislation which has defined a more important role for public transportation services within metropolitan areas such as Lansing/East Lansing. Specifically, requirements in the Intermodal Surface Transportation Efficiency Act (ISTEA), the Clean Air Act Amendments (CAAA) of 1990 and the Americans with Disabilities Act (ADA) of 1990 have accelerated changes in both State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) and created more challenges to their operations and functions. A few examples of the initiatives being undertaken in response to these Acts are:

- a renewed interest in transportation planning, which includes both a requirement for statewide planning and expanded considerations of the interrelationships and trade-off among various travel modes;
- increased awareness of the need for integration and co-ordination of all modes of travel;
- increased emphasis on making non-auto trips attractive in keeping with more

stringent air quality requirements;

- increased flexibility in the use of federal-aid transportation funds, and;
- increased cooperation and recognition of a more involved role among State DOTs, MPOs and transportation providers.

The second external influence is the current state of traffic and transportation in East Lansing. With the opening of the Meridian Mall, the already congested conditions along Grand River Avenue have led to significant automobile intrusion into the East Lansing residential neighborhoods. With the convergence of traffic from Michigan Avenue, the section of the boulevard east of Abbott Road has come under tremendous pressures. Any reconstruction plans will be and have been met with public concern. The public transportation system has inexorably been drawn into the fray of these debates.

In order to address the various aspects of this situation, the Michigan Department of Transportation (MDOT), in cooperation with CATA, MSU and a number of other effected parties, initiated the conduct of what has come to be termed the **Greater Lansing Public Transportation Coordination Study**. (A listing of the project's Policy and Technical Committees is presented in Appendix 1-1.)

This project has been conducted in several distinct, but closely related tasks. These were as follows:

- The compilation of background data describing current transportation conditions in the study area, with a principal emphasis on the use of existing intercity carriers by travellers to and from East Lansing community, and the use of CATA and MSU buses for local travel to and from the MSU campus area;
- An examination of alternative sites for both potential on-campus CATA/MSU transfer facilities and improved intercity terminal facilities; and
- An examination of similar situations nationwide through a survey of university/public transit relationships in other similar communities and an assessment of the degree to which this experience might be transferrable to the East Lansing / Michigan State University situation.
- An examination of the possible causes for the recently observed declines in ridership on the CATA system routes in the East Lansing area and developing recommendations to

remove obstacles and provide incentives and services to recapture this ridership. This would include improved coordination between the MSU and CATA transit services.

Following this overview and introduction, Chapter 2 describes the potential functions of both an intercity terminal and a local MSU/CATA terminal facility, within the adopted overall planning framework of the Michigan State University campus. Chapter 3 summarizes the estimates of potential demand for these facilities, based upon current and projected utilization levels, while Chapter 4 presents the results of the alternative site selection and evaluation process and describes the recommended intercity terminal and the CATA/MSU local transfer center sites ultimately selected. Chapter 5 presents illustrative site plans for the recommended intercity terminal and local transfer center sites.

Chapter 6 discusses the survey of comparable situations elsewhere in the United States and implications for the East Lansing / Michigan State University area, while Chapter 7 discusses opportunities for enhanced CATA/MSU service coordination.

Finally, Chapter 8 presents the estimated costs of constructing the recommended intercity terminal and on-campus transfer center, and discusses the implementation and management steps required to translate the concept plans into reality.

A series of Appendices are presented which contain technical supporting material developed during the course of the project, including: general facility design criteria; detailed descriptions of each of the alternative intercity and local transfer center sites which were considered; and summaries of the results of the local and intercity travel surveys which were conducted.

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Chapter 2 - FUNCTIONS OF INTERCITY TERMINAL AND CATA/MSU TERMINAL CENTER FACILITIES

Introduction:

An important element of this overall project was the definition of the appropriate type, size, functions and locations of improved transit terminal facilities in the East Lansing area. The two principal types of facilities which have been recommended for implementation are as follows:

- 1. An improved on-campus bus terminal and transfer point between those local transit services operated by the Capital Area Transit Authority (CATA) and the Michigan State University (MSU) bus systems; and**
- 2. An improved terminal to serve both intercity bus (Greyhound and Indian Trails) and intercity rail (Amtrak) transportation services.**

The purpose of this chapter of the project final report is to present the list of recommended functional activities which would be included within each of these different types of facilities. This listing of functions represents the consensus of the members of the project's Technical Advisory Committee.

Recommended Functions of an Improved CATA/MSU Bus Terminal Facility:

Currently, the CATA East Lansing operations (Routes 17, 19, 20, and 21) do not conveniently serve the MSU student population by going from off-campus residence locations to where they want to go on-campus. In addition, only Route 21, and only in one direction, provides a direct connection with the MSU on-campus bus system.

Both CATA and the Michigan State University bus system have long recognized the need to provide expanded transfer and service coordination opportunities between their two services. Such improved coordination would be of benefit to university students, university faculty and staff, and other residents of the East Lansing area, particularly those persons within these potential user groups without easy access to an automobile.

The recently prepared Campus Transportation and Parking Study¹ recommended the

construction of such a facility near the intersection of Shaw Lane and Farm Lane in the central portion of the Michigan State University campus. **Based upon currently defined requirements and input from CATA and MSU staff, it is recommended that the services and functions illustrated on Table 2-1 be included in this facility.**

Recommended Functions of an Improved Intercity Transportation Terminal Facility:

Typically, the intercity bus and rail systems have viewed themselves as competitors for similar travel markets. More recently, however, they have come to recognize their potentially complimentary roles. This is particularly the case in the East Lansing area where, for example, Indian Trails Bus Lines has observed significant ridership increases as a result of the initiation of operations out of the current Amtrak station along Harrison Road.

An intercity transportation terminal facility, particularly one which incorporates both intercity bus and intercity rail operations into a single location, is, by function and definition, a multi-use development incorporating several different transportation and non transportation functions. This multi-use character and consolidation and coordination of transportation elements are what differentiates such a terminal facility from a parking facility, a local public transportation system transfer point, an intercity bus terminal, or another single use facility.

The basic rationale behind the consolidation of several transportation and non-transportation functions into a single facility is that through the proximity of these functions, each individual function is made more economical and/or efficient. Thus, a synergism occurs in which the ultimate total impact is greater than the sum of the individual components. This is merely another way of saying that certain transportation and non transportation functions can reinforce one another and make each other better as a result of being located in a single facility.

Multiple use of parking spaces is but one example of this efficiency potential. Parking spaces which serve different types of demand (e.g., daytime commuter or student parking, afternoon shopper parking, and evening theater or special event parking) make much more efficient use of available resources. The same concept holds for an integrated ground transportation center. The initial step in the integrated terminal development process where potential transportation and non-transportation functions are examined must address the possible uses for the transportation center facility which can reinforce each other. Providing both a generator of people traffic (e.g., a local bus stop, an intercity bus or rail terminal, and a multiple function

Table 2-1
POSSIBLE FUNCTIONS OF THE CATA/MSU TRANSFER CENTER

Potential Transportation Functions:

1. CATA bus stop / route-to-route transfer area
2. MSU bus system stop / route-to-route transfer area
3. Enclosed passenger waiting area
4. Information center for CATA, MSU and other local and intercity transportation services
5. Sales/distribution center for CATA and MSU services/tickets/passes (manned or unmanned)
6. Sales/distribution center for intercity carrier ticket sales (manned or unmanned)
7. Public restrooms / CATA and MSU driver break area
8. Bicycle storage/locker facilities

Potential Non-Transportation Functions:

1. Newsstand / vending services
2. U.S. Postal Service Self Service Mailing Center
3. Fast food restaurant
4. Book store

parking facility, etc.) and a use which requires people traffic (e.g., pedestrian oriented retail space, etc.) develops the mutual reinforcement which the ground transportation center seeks to cause.

The recommended list of transportation and non-transportation functions amounts to a "shopping list" of possibilities. The initial determination of what functions might be potentially included in such a consolidated intercity transportation terminal complex was based upon analysis of the overall downtown East Lansing / Michigan State University campus area. Existing and planned transportation elements in and near the downtown and campus area, existing and planned land uses and proposed development or redevelopment projects were all considered in determining the appropriate functions for inclusion in such a facility.

The list of transportation and non-transportation functions ultimately recommended by the members of the Technical Advisory Committee for inclusion in a single, consolidated intercity terminal to serve the East Lansing area is presented in Table 2-2. As noted on this table, all current intercity bus (Greyhound and Indian Trails) and intercity rail (Amtrak) transportation functions have been recommended for inclusion in the facility. With its potential as a source of information for all local and intercity travel modes serving the East Lansing community, such a facility could satisfy a wide variety of transportation needs.

By its very nature, such a facility is intended to allow for the rapid interchange of passengers between arrival and departure modes in a comfortable and convenient manner. Major transfer movements are thus likely to occur between local and intercity buses, between intercity buses and Amtrak operations, and between private cars or taxis and the intercity bus and rail services. Moreover, service and convenience for CATA local bus patrons could be enhanced by providing a retail outlet for over-the-counter sales of weekly and monthly passes, etc.

Acting as an entity in itself, such a terminal facility could function as both a primary and a secondary destination. In addition to intercity travellers, persons on their way to work or the university might also stop for some secondary trip purpose, such as buying a newspaper or magazine, coffee or candy.

Additional Potential Non-Transportation Functions at the Intercity Terminal Site:

While the recommended intercity bus and intercity rail services and associated supporting functions represent the principal reason for the construction of a consolidated intercity transportation terminal facility, the potential for the inclusion of additional non-transportation related functions makes the overall development somewhat unique and provides opportunities

Table 2-2

POSSIBLE FUNCTIONS OF AN INTERCITY TERMINAL FACILITY

Potential Transportation Functions:

1. Intercity bus passenger loading/unloading (Greyhound and Indian Trails Bus Lines)
2. Intercity bus ticket office/waiting area
3. Intercity bus freight office/loading/unloading (storage lockers)
4. Intercity rail passenger loading/unloading (Amtrak)
5. Intercity rail ticket office/waiting area
6. Intercity rail freight office/loading/unloading (storage lockers)
7. CATA bus stop / information kiosk
8. Michigan State University bus stop / information kiosk
9. Taxi / limousine stand / airport shuttle services
10. Airline ticket office / travel agent
11. Car rental office (Hertz, Avis, etc.)
12. Package delivery service office (Federal Express, etc.)
13. Off-street auto parking facilities (short-term and long term).
14. Bicycle parking and storage facilities
15. Public restrooms / driver break area
16. Package lockers for passengers

to reinforce the presently observed development patterns of this area of the City of East Lansing in a manner compatible with the adjacent Michigan State University campus. These non-transportation functions vary with each individual community, and are also dependent upon the intercity terminal site location and the strength of the local development market. Typically, intercity passengers alone are insufficient to support significant increments of private development. However, the passengers and employees of an intercity terminal may provide an additional margin of profitability for businesses which would otherwise serve the general East Lansing / MSU clientele.

An intercity transportation terminal facility may also induce business development by providing economic advantages for private business operation. The cost of private development and business operations may be lower at an intercity terminal than elsewhere in the immediate area due to a variety of factors including, but not limited to, the following:

- Public land assembly
- Lower land cost or lease terms
- Public provision of basic building program and/or interior circulation space
- Joint facility operation
- Public parking provisions

The dual advantages of on-site market potential and advantageous development economics can be viewed as a potential lever to encourage new private development to move to an intercity terminal complex and thus result in the provision of beneficial commercial services to the area adjacent to the Michigan State University campus and the East Lansing region as a whole.

Table 2-3 illustrates some of the potential non-transportation functions which might be included in a consolidated intercity terminal facility located at the recommended site near the intersection of Trowbridge Road and Harrison Road. The degree to which any of these potential non-transportation functions might actually be ultimately included in the proposed new intercity terminal facility will be dependent in no small measure on local economic conditions at the time that the facility is actually being designed and constructed.

One of the most interesting potential joint development opportunities involves the Michigan High School Athletic Association (MHSAA). As discussed in Chapter 5, the recommended intercity terminal site plan envisions the need to acquire a portion of the existing MHSAA parking area to allow for necessary site access and circulation. In initial conversations with MHSAA representatives, it was learned that this organization is considering either an on-site expansion or the potential relocation of its facilities in order to be better able to accommodate the needs of its members. A major limiting factor at the present time is the amount of on-site

Table 2-3

**POSSIBLE NON-TRANSPORTATION FUNCTIONS FOR INCLUSION
IN THE INTERCITY TERMINAL FACILITY**

1. Newsstand / convenience store
2. Fast food restaurant
3. Police substation (City of East Lansing or Michigan State University)
4. Information/Visitors Center (City of East Lansing or Michigan State University)
5. Michigan High School Athletic Association (MHSAA) offices
6. Other Michigan high school association offices
7. Other City of East Lansing or Michigan State University offices

parking available for larger association meetings, and space availability within the present building. **It is thus strongly recommended that this joint use potential be more fully investigated during the more detailed design development phase of project implementation for the recommended intercity terminal facility.**

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Chapter 3

POTENTIAL DEMAND FOR INTERCITY TERMINAL AND LOCAL TRANSFER CENTER FACILITIES

Introduction:

An important aspect of this assignment was a determination of the potential magnitude of use of the proposed intercity terminal and the proposed CATA/MSU transfer terminal facility. This determination was based upon examinations of present day and recent historical usage of the existent facilities in the area and forecasts of expected changes in utilization due to service coordination and consolidation. For the purposes of this discussion, the potential demand for the intercity terminal and the MSU/CATA terminal facilities will be presented separately.

Existing and Future Intercity Travel Patterns:

An important factor in the proper planning and design of an intercity ground transportation centre, especially one such as is proposed for East Lansing which incorporates both intercity bus and intercity rail services, is a clear understanding of the existing and future intercity travel patterns which such a facility would have to accommodate. It is important not only to have a realistic estimate of the number of intercity person movements, but also to be aware of the number of, and the time at which, intercity vehicle movements (either intercity bus or intercity railroad) are made.

In addition to an analysis of data on current and historical intercity operations provided by Amtrak, Greyhound, and Indian Trails Bus Lines, a limited number of interview type travel surveys were conducted in October of 1993 by members of the consultant team of actual intercity bus travellers using Greyhound and Indian Trails services to obtain more detailed origin-destination, trip purpose, and mode of access/departure information. Similar information for users of the East Lansing Amtrak terminal was obtained from a survey conducted by the Michigan Department of Transportation in March of 1993. The purpose of this section of Chapter 3 is to briefly review the results of this data compilation and analysis phase of the project and to present the implications of this information upon the planning of the proposed intercity terminal facility in East Lansing.

The first step in this process consisted of an examination of data provided by the various intercity carriers on their current operations in the East Lansing area. Table 3-1 presents a comparison of the use of current intercity travel modes in the East Lansing area as compared to data for the State of Michigan as a whole. It should be specifically noted that this

**Table 3-1
EXISTING INTERCITY TRAVEL IN THE LANSING/EAST LANSING AREA ¹**

<u>Mode / Carrier</u>	<u>1993 Estimated Ridership</u>			<u>Totals</u>
	Lansing	East Lansing	Amtrak Sta.	
Intercity Bus				
Greyhound	33,500	12,500	---	
Indian Trails	16,900	6,400	7,000	
Subtotals	50,400	18,900	7,000	76,300
Intercity Rail				
Amtrak				37,200
Intercity Air				
All Carriers serving Lansing				592,000
			TOTAL	705,500

¹ Source: Michigan Department of Transportation, Intercity bus operators, Amtrak and Capital Area Airport Authority.

information excludes the impact of private automobile travel, which is by far the dominant intercity carrier for trips of less than 300 miles distance.

As shown on Table 3-1, it is estimated that a total of approximately 705,500 intercity passenger trips originated in the Greater Lansing / East Lansing Metropolitan area during calendar year 1992. Of this total, approximately 76,300 trips (or about 10 percent of the total) used either Greyhound or Indian Trails buses, while approximately 36,000 trips (about 5 percent) were made by Amtrak and 592,000 trips (about 85 percent) were made by scheduled airline. Of the total of approximately 76,300 intercity bus passengers in the region, it is estimated that approximately 25,900 passengers (or about 33 percent of the regional total) utilized the East Lansing intercity bus and Amtrak terminals.

In comparison to data for the entire State of Michigan, total intercity bus ridership in calendar year 1990 (the most recent year for which statewide totals are available) was approximately 650,900 while statewide intercity rail passenger service in calendar year 1992 was approximately 546,600 and scheduled airline passengers totalled approximately 25,994,700 in 1992. It should be particularly noted that approximately 21,983,000 of the total statewide airline passenger operations took place in the Metropolitan Detroit Area, with a result that approximately 4,596,900 airline passenger trips took place in the remainder of the state.

Thus, intercity travel to and from the Greater East Lansing area during 1992 accounted for approximately 11.7 percent of the total statewide bus ridership and approximately 6.6 percent of total statewide rail ridership. These findings indicate that the East Lansing community is an important contributor to intercity passenger services in the state.

Intercity Rail Travel Patterns. Between 1980 and 1993, the level of intercity rail passenger activity has remained relatively constant at the East Lansing Amtrak terminal. Ridership has hovered around 36,000 passengers annually, and has ranged from a low of 34,540 passengers in 1991 to a high of 38,492 passengers in 1985. The total annual passenger traffic at the East Lansing terminal in calendar year 1993 was 37,168 persons.

Of particular note is the observed increase over the past several years in the number of passengers through the East Lansing Amtrak terminal associated with the initiation of Amtrak Thruway bus service in 1991 to both Battle Creek (by Indian Trails) and Toledo (by Lakefront Trailways). It is estimated that in 1993, the third year of the operation, the total Amtrak Thruway bus passengers were approximately 7,000 persons, or about 20 percent of the total intercity rail ridership. This dramatically highlights the potential success of coordinated, intercity rail and bus services in increasing the total passenger volume at a multimodal terminal

facility. Table 3-2 illustrates the current Amtrak operating schedule in the East Lansing area.

Information provided by Amtrak, the Capital Area Rail Council and the Michigan Department of Transportation allowed for an analysis to be made of the origins and destinations of intercity rail users travelling to and from East Lansing. Of the various stations served along the Chicago - East Lansing - Port Huron - Toronto Amtrak line, the Chicago (27.7 percent), Port Huron / Toronto (24.2 percent) and East Lansing (16.7 percent) stations together accounted for nearly 70 percent of total boardings and alightings during fiscal year 1992. Passenger activity at East Lansing was almost double that of the next largest station (Flint).

Passenger surveys conducted at the East Lansing Amtrak terminal in late March and early April of 1993 by the Capital Area Rail Council and the Michigan Department of Transportation obtained a variety of information on passenger characteristics. These are summarized below:

Employment Status (3 highest)

- employed full-time (37.3%)
- college student (24.1%)
- other student (13.8%)

Residency

- Michigan (86.1%)
- Illinois (9.6%)
- Other (4.3%)

Origin Description (three highest)

- Home (57.6%)
- University/college (25.2%)
- Family/friends (10.8%)

(only 3.1% of trip origins were related to work in some manner)

Destination Description (three highest)

- Vacation location (31.9%)
- Family/friends (25.4%)
- Home (25.1%)

(only 4.0% of destinations were related to work in some manner)

Table 3 - 2
CURRENT AMTRACK OPERATING SCHEDULE

Service to Pontiac, Birmingham and Royal Oak begins May 5, 1994.

Chicago... Battle Creek... Port Huron... Detroit... Toledo/Pontiac/Toronto

Wolverine	International	International	Lake Cities	Twilight Limited	◀ Train Name ▶					Wolverine	Lake Cities	International	Twilight Limited	International
350	364	366	352	354	◀ Train Number ▶					351	353	365	355	367
Daily	Mo-Sa	Su	Daily	Daily	◀ Days of Operation ▶					Daily	Daily	Mo-Sa	Daily	Su
☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	◀ Train Service ▶					☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
READ DOWN					Mile	Symbol	READ UP							
7 00A	8 20A	10 50A	3 25P	6 15P	Op	(Conrail) Chicago, IL - Union Sta. (CT)	0	☐	Ar	11 35A	4 45P	6 35P	9 45P	10 40P
7 26A	8 46A	11 16A	3 51P	6 41P	↓	Hammond-Whiting, IN	16	☐	↑	10 58A	4 01P	5 56P	9 06P	10 01P
				7 17P	↓	(Amtrak) Michigan City, IN (CT)	52	☐	↑	10 18A				
9 33A	11 00A	1 26P	6 09P	8 51P	↓	Niles, MI (South Bend) (ET)	89	☐	↑	10 37A	3 53P	5 48P	8 57P	9 51P
				9 05P	↓	Dowagiac, MI	102	☐	↑	10 24A				
10 36A	11 52A	2 18P	7 03P	9 46P	↓	Kalamazoo, MI	136	☐	↑	9 45A	3 03P	4 58P	8 07P	8 58P
11 03A	12 28P	2 58P	7 33P	10 16P	Ar	Battle Creek, MI	160	☐	Dp	9 17A	2 33P	4 30P	7 38P	8 30P
				10 40P	Op	(Grand Trunk Western) East Lansing, MI	206	☐	↑	7 30A		3 15P		7 15P
	1 27P	4 02P		11 40P	↓	Durand, MI	238	☐	↑			2 45P		5 45P
	1 57P	4 32P			↓	Flint, MI	256	☐	Dp	8 15A		2 23P		6 23P
	2 24P	4 59P		1 25A	Op	Saginaw, MI	293	☐	Ar					
					Op	Bay City, MI	309	☐	Dp					
	2 43P	5 18P		2 00A	Dp	Lapeer, MI	274	☐	Dp	5 20A		2 03P		6 03P
	3 47P	6 17P		3 00A	Ar	Port Huron, MI	319	☐	Dp	4 15A		1 15P		5 15P
	4 05P	6 25P			Op	(Conrail) Albion, MI	184	☐	↑			2 03P		
				8 02P	↓	Jackson, MI	205	☐	↑	8 27A		1 41P		6 46P
11 48A				8 25P	↓	Ann Arbor, MI	243	☐	↑	7 51A		1 06P		6 14P
12 28P				9 04P	↓	Dearborn, MI (Sea Station note below)	273	☐	↑	7 17A	12 32P			5 41P
12 59P				9 39P	↓	12 40A	279	☐	Dp	6 45A	11 50A			5 10P
1 24P				10 04P	Ar	12 45A			Ar					
1 26P				10 15P	Op	Toledo, OH (ET)	335	☐	Dp		10 10A			
				11 55P	↓	Royal Oak, MI	291	☐	↑	6 24A				4 48P
					↓	Birmingham, MI	296	☐	↑	6 17A				4 42P
					↓	Pontiac, MI	302	☐	Ar	6 05A				4 30P
						Connecting Train No.								
				12 49A	Dp	Toledo, OH	335	☐	Ar					
				2 51A	Ar	Cleveland, OH	442	☐	↑	6 06A		7 06A		4 05P
				6 02A	Ar	Buffalo-Depew, NY	629	☐	↑	7 06A		9 51A		4 02P
				11 17A	Ar	Albany-Rensselaer, NY	918	☐	↑	7 10P		10 23P		
				2 48P	Ar	New York, NY-Penn Sta.	1060	☐	↑	7 10P		7 10P		
				4 50P	Ar	Boston, MA-So. Sta.	1118	☐	Dp	4 20P		4 20P		
						(VIA Rail Canada) Sarnia, ON.	322	☐	Dp				12 10P	4 05P
4 25P	6 45P			7 25P	Ar	Strathroy, ON.	361	☐	↑				12 05P	4 02P
5 10P	8 04P				Ar	London, ON.	381	☐	↑				11 21A	3 21P
5 49P	8 25P				Ar	St. Marys, ON.	401	☐	↑				10 50A	2 50P
6 10P	9 00P				Ar	St. Marys, ON.	401	☐	↑				10 19A	2 20P
6 43P	9 17P				Ar	Stratford, ON.	412	☐	↑				10 02A	2 02P
6 59P	9 47P				Ar	Kitchener, ON.	436	☐	↑				9 34A	1 33P
7 27P	10 08P				Ar	Guelph, ON.	452	☐	↑				9 03A	1 10P
7 50P	10 34P				Ar	Georgetown, ON.	471	☐	↑				8 39A	12 45P
8 18P	10 45P				Ar	Brampton, ON.	479	☐	↑				8 27A	12 33P
8 26P	11 26P				Ar	Toronto, ON. (ET)	501	☐	Dp				7 50A	12 00N

Services On Board These Trains

Services on board each train are noted with symbols and can be found in the "Train Service" area above.

- ☐ Custom Class—Deluxe reserved coach seating, Complimentary beverages and newspaper.
- ☐ Sandwiches, snack and beverage service.
- ☐ Amtrak Express Shipping and Checked Baggage Service available at stations indicated. Hand baggage only handled at Detroit.
- ☐ Railfone public telephone service is available on trains operating between Chicago and Pontiac.
- ☐ Smoking is not permitted on these trains.
- ☐ Service is financed in part through funds made available by the State Department of Transportation. State supported trains are operated at the discretion of each state and their operation is dependent upon continued state financial support.

Detroit Station Note: Effective May 5, 1994, Amtrak moves to a new station in Detroit, located on Woodward Avenue near Baltimore Avenue. From May 1-4, 1994, trains will serve Detroit through the station located at 2601 Rose St. (on 17th Street, 1 1/2 blocks south of Michigan Avenue).

Note: On Trains 364, 365, 366, 367, the International service is operated jointly by Amtrak and VIA Rail Canada. Service and operating personnel are provided by both companies. Trains operating within Canada are subject to VIA Rail Canada regulations.

Note: See General Information on page 4 for important customs and immigration information. Passport, birth certificate, citizenship certificate, or naturalization certificate required to cross U.S./Canadian border.

Symbols and reference marks are listed on a fold out page located on the back cover. Local public transit connections are listed on page 43.

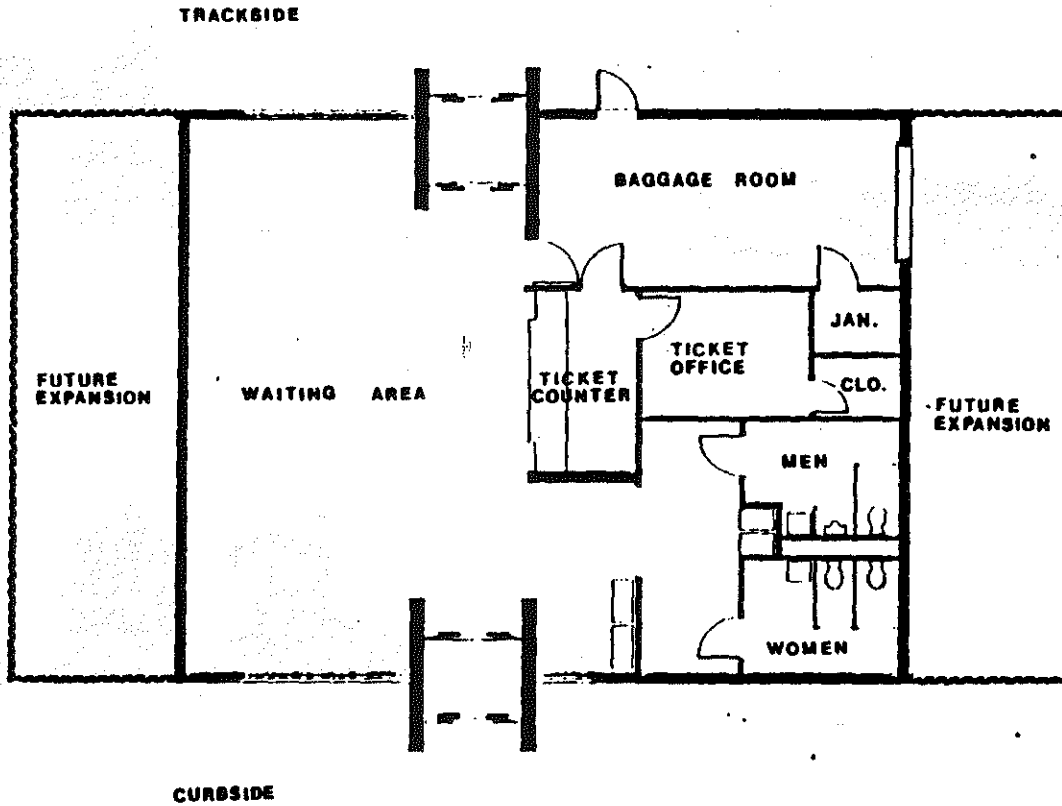
Access Mode to Station:

- Dropped off by someone (51.0%)
- Drove and parked car (32.8%)
- Walk (8.1%)
- Other (8.1%)

One of the most important findings of this passenger survey was the fact that 19.4% of all Amtrak passengers had used the connecting Thruway Bus Service operated by Greyhound and Indian Trails to access the rail station. This clearly indicates the usefulness of having a combined, intermodal terminal facility. This finding is further reinforced when considering Table 3-4 which summarizes the destinations of Indian Trails passengers who boarded at the East Lansing bus terminal during 1993. Fully 37.2 % of the total boardings were destined for the Amtrak rail station in Battle Creek.

The effect of somewhat constrained financial resources with which to operate Amtrak services make projections of future intercity rail travel to and from the East Lansing area very difficult. Rather than attempt to undertake a rigorous exercise, therefore, the approach taken was to utilize data provided by Amtrak on general station size and configuration developed to handle expected ranges of peak hour intercity rail users in medium size metropolitan areas such as East Lansing. Thus, the size and operating characteristics of the Amtrak standard Type 50C station were employed in the development of the preliminary space program for the Amtrak component of the proposed East Lansing intermodal transportation terminal. This is the same type of rail station which was constructed several years ago in Flint, Michigan. Figure 3-1 illustrates the size and general configuration of this Amtrak standard station. It should be noted that only occasional intercity bus operations presently serve the Flint Amtrak station, a situation substantially different from that currently observed in East Lansing.

The Amtrak Type 50C station is used where light to moderate passenger volumes of between 50 and 150 passengers are anticipated to occur during the peak arrival and departure hours. For comparison purposes, the number of passengers observed boarding Amtrak trains in East Lansing during the March 27 to April 10, 1993 survey period ranged from a low of 1 on several occasions to values slightly in excess of 100 passengers on only two occasions. The average boardings for any of the trains ranged from a low of 11.6 passengers per day to a high of 47.4 passengers per day. Thus, a standard Amtrak station design with a waiting area able to accommodate between 50 and 150 peak hour passengers appears to be appropriate. Although no railroad administrative offices or support facilities are provided in this size of station, the design is flexible enough to allow for easy expansion to accommodate future demands of increased ridership and baggage handling.

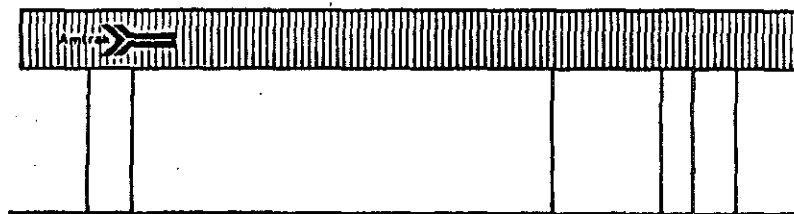


FLOOR PLAN

	Office of the Chief Engineer	Type 50C Station
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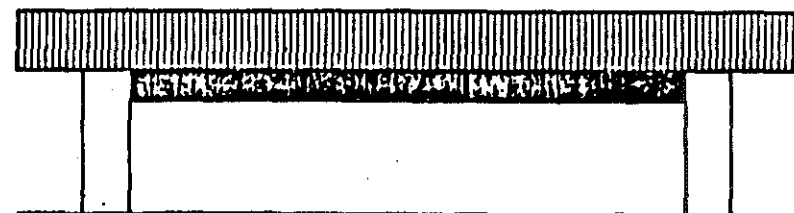
Trackside View



End View

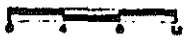


Curbside View



End View

Elevations



Another as yet unresolved issue effecting the operations of future intercity rail passenger service in the East Lansing area is the increase in rail freight operations expected to be observed upon the completion of the Port Huron rail tunnel improvement project. Preliminary estimates prepared by the Michigan Department of Transportation anticipate the potential for the current 25-30 trains per day to increase to as many as 50-60 trains per day over the next 3-5 years. Increases in rail freight operations of this magnitude would complicate the scheduling of rail passenger service as well as result in increased delays for vehicular traffic at the existing at-grade crossings in the East Lansing area.

Intercity Bus Travel Patterns. Data on the volumes and general travel patterns of intercity bus passengers to and from the East Lansing area was provided by Greyhound and Indian Trails Bus Lines. Table 3-3 presents a summary of annual Greyhound and Indian Trails ridership in the East Lansing area over the past several years. Table 3-4 provides a summary of the destinations of the local (State of Michigan) intercity bus passenger trips carried by Indian Trails during 1993. It is interesting to again highlight that 37.2 % of the total intercity bus passengers departing from the East Lansing terminal are destined for the Battle Creek Amtrak station.

In addition to this general information, more specific data on the local origins and destinations of departing passengers from the existing East Lansing terminal was obtained through a survey of arriving and departing passengers. This survey was conducted on Tuesday, October 12 and Friday, October 15, 1993. These days were selected to capture the travel patterns of intercity bus passengers to and from East Lansing on a typical mid-week day and on a typical Friday.

Friday, October 15th was selected because there was no home football game at MSU that weekend. Thus, the patterns observed on those days can be considered to be representative of the activity at the bus terminal during the majority of the university's academic year. At the time of the survey, there were a total of 21 scheduled bus arrivals and departures per day at the East Lansing terminal. On Fridays, three of the scheduled Greyhound trips to Detroit use two vehicles. The October, 1993 operating schedule is shown in Table 3-5.

The survey was administered by MSU students hired on a part-time basis by consultant team staff who wore nametag badges identifying them as surveyors. Announcements about the survey and its purpose were posted in the terminal. The surveyors asked people waiting in or outside the bus terminal a short set of questions about their trips, origins, destinations, trip purposes, and local access mode. On Friday, the surveyors asked an additional question about the return trip. The surveyors recorded this information on survey sheets. (A copy of this survey form is presented in Figure 3-2.)

**Table 3-3
Annual Intercity Bus Passengers
East Lansing Terminal ¹**

<u>Year</u>	<u>Greyhound</u>	<u>Other²</u>	<u>Totals</u>
1993	12,500	4,000	16,500
1992	15,700	4,500	20,200
1991	16,400	6,400	22,800
1990 ³	13,100	8,100	21,200
1989	20,800	19,800	40,600
1988	19,900	21,000	40,900
1987	18,100	20,200	38,300
1986	22,400	22,400	44,800

¹ **Source:** Michigan Department of Transportation and intercity bus operators.

² **Includes** Indian Trails Bus Lines and North Star Bus Lines.

³ **Year of** nationwide Greyhound strike.

Table 3-4
Destinations of Indian Trails East Lansing Terminal Trip Origins, 1993 ¹

<u>Destination</u>	<u>Annual Trips</u>	<u>Percent of Total</u>
Chicago	536	8.4
Hammond, Ind.	14	0.3
Gary, Ind.	12	0.2
Michigan City, Ind.	10	0.2
New Buffalo	3	---
Benton Harbor	238	3.7
Paw	7	0.2
Kalamazoo	1,171	18.3
Battle Creek	527	8.2
Amtrak - Battle Creek	2,382	37.2
Charlotte	58	0.9
Lansing	5	0.1
Owosso	245	3.8
Flint	809	12.6
Saginaw	267	4.2
Bay City	116	1.8
Totals	6,400	100.0

¹ Source: Indian Trails Bus Lines

TABLE 3-5

EAST LANSING
GREYHOUND AND INDIAN TRAILS BUS SCHEDULE
OCTOBER, 1993

COMPANY	DEPARTURE TIME	DESTINATIONS
INDIAN TRAILS	7:15 AM	BATTLE CREEK, KALAMAZOO, CHICAGO
INDIAN TRAILS	8:20 AM	FLINT, SAGINAW, BAY CITY
GREYHOUND	8:40 AM	BRIGHTON, SOUTHFIELD, DETROIT
GREYHOUND	9:50 AM	GRAND RAPIDS, MUSKEGON
INDIAN TRAILS	10:55 AM	BATTLE CREEK, KALAMAZOO, CHICAGO
GREYHOUND	12:15 PM	JACKSON, ANN ARBOR, YPSILANTI
INDIAN TRAILS	12:45 PM	FLINT, SAGINAW, BAY CITY
INDIAN TRAILS	1:05 PM	BATTLE CREEK, KALAMAZOO, CHICAGO
GREYHOUND *	1:15 PM	BRIGHTON, SOUTHFIELD, DETROIT
GREYHOUND	1:50 PM	GRAND RAPIDS, MUSKEGON
INDIAN TRAILS	3:25 PM	BATTLE CREEK, KALAMAZOO, CHICAGO
GREYHOUND*	4:15 PM	BRIGHTON, SOUTHFIELD, DETROIT
GREYHOUND	4:30 PM	JACKSON, ANN ARBOR, YPSILANTI
GREYHOUND	5:00 PM	GRAND RAPIDS, MUSKEGON
INDIAN TRAILS	5:20 PM	FLINT, SAGINAW, BAY CITY
GREYHOUND	6:00 PM	CLAIR, CADILLAC, TRAVERSE CITY
INDIAN TRAILS	7:20 PM	BATTLE CREEK, KALAMAZOO, CHICAGO
GREYHOUND*	7:40 PM	BRIGHTON, SOUTHFIELD, DETROIT
INDIAN TRAILS	8:20 PM	FLINT, SAGINAW, BAY CITY
GREYHOUND	9:00 PM	GRAND RAPIDS, MUSKEGON
INDIAN TRAILS	11:50 PM	FLINT

* 2 BUSES ON FRIDAY

Both departing and arriving passengers were surveyed. Although it was difficult to get responses from arriving (disembarking) passengers using this procedure, the number of arrivals was low enough on the two survey days that the surveyors felt confident that they caught almost all of them.

On the Friday of the survey, there were 215 passenger departures and 48 arrivals. Ninety percent of the departures were students. Of the departing passengers, 36% walked to the terminal, 31% were dropped off, 11% came by CATA bus, 5% used the MSU bus system and walked a portion of the trip, and 16% came by taxi. Of the arriving passengers, 65% were picked up, 19% walked to their final destination, 6% took a taxi, and 4% took a CATA bus. Tables 3-6 and 3-7, respectively, show the distribution of the arriving and departing passengers and their local access modes by their bus and arrival/departure time.

Most of the departing passengers started their trip at a MSU residence hall or at the perimeter of the campus. Of the total reported trip origins, 83% were on the MSU campus or on the perimeter of the campus. The rest were distributed throughout the greater East Lansing and Lansing area. The trip purposes given by passengers departing and arriving on Friday were almost uniformly "home" or "visit". Most of the arrivals were students from other schools visiting friends at MSU for the week-end.

There were 170 persons who answered the questions about their return trip. Of these, 56% indicated their intention to make the return trip by intercity bus and 86% of those returning by bus would be making this trip on the following Sunday. The local access mode for most of them is the same as that used on Friday.

On the Tuesday of the survey there were 23 departing passengers, of which 39% were students, and 14 arriving passengers. Of the departing passengers, 8.7% walked to the terminal, 56% were dropped off, 13% came by CATA bus and 13% came by taxi. The arriving passengers left the station as follows: 64% walked, 7% were picked up, 14% took a taxi and 14% drove away in their own cars. Tables 3-8 and 3-9, respectively, show the distribution of the departing and arriving passengers by their bus and time and also show the distribution of the local access modes.

The trip purposes of these midweek departing passengers were typically "home" or "visit". Of the 23 departing passengers, 83% gave that as the purpose of their trip. Of the 14 arriving passengers, 79% were students returning back to school.

TABLE 3-6

SUMMARY OF INTER-CITY BUS PASSENGER DEPARTURES
 FRIDAY OCT. 15, 1993
 E. LANSING GREYHOUND BUS DEPOT

BUS ID & TIME	NO. OF DEPART	MSU STUDENTS	MODE OF ARRIVAL				MSU BUS	TAXI	AUTO PAS (PARKED)	AUTO DRIVER	BIKE	UN KNOWN
			WALK	DROP OFF	CATA BUS	MSU						
I CHICAGO 7:15 AM	1	0		1								
I FLINT 8:20 PM	0	0										
G DETROIT 8:40 AM	10	10	8	4								
G G. RAPIDS 9:50 AM	1	1	1									
I CHICAGO 10:55 AM	1	0	1									
G ANN ARBOR 12:15 PM	10	10	7	2				1				
I FLINT 12:45 PM	6	4		1			2	3				
I CHICAGO 1:05 PM	8	7	3	3							1	
G DETROIT 1:15 PM*	46	45	23	8	2	3	6				1	3
G G. RAPIDS 1:50 PM	16	14	3	4	3	1	3					
I CHICAGO 3:25 PM	10	10	5	4	1							
G DETROIT 4:15 PM*	38	35	15	12	1	1	10	1	1			
G ANN ARBOR 4:30 PM	19	19	6	7	1		4				1	
G G. RAPIDS 5:00 PM	4	3	2	2								
I FLINT 5:20 PM	8	4	1	5	1	1						
G TRAV CITY 6:00 PM	3	2	1	2								
I CHICAGO 7:20 PM	8	7	1				3					4
G DETROIT 7:40 PM*	18	16	1	7	3	1	5					1
I FLINT 8:20 PM	1	1	1									
G G. RAPIDS 9:00 PM	5	5	1	4								
I FLINT 11:50 PM**	2	2				2						
TOTAL	215	195	78	66	23	11	35	1	1	3	8	
PERCENT	100.00%	90.70%	36.28%	30.70%	10.70%	5.12%	16.28%	.47%	.47%	1.40%	3.72%	

* two buses

** data collected on Oct. 29, 1993

TABLE 3-7

SUMMARY OF INTER-CITY BUS PASSENGER ARRIVALS

FRIDAY OCT. 15, 1993

E. LANSING GREYHOUND BUS DEPOT

BUS ID & TIME	NO. OF ARRIVAL	LOCAL MODE								
		WALK	PICK UP	CATA BUS	MSU BUS	TAXI	AUTO PASS (PARKED)	AUTO DRIVER	BIKE	UH KNOWN
I CHICAGO 7:15 AM	0									
I FLINT 8:20 PM	0									
G DETROIT 8:40 AM	0									
G G. RAPIDS 9:50 AM	1			1						
I CHICAGO 10:55 AM	2		1	1						
G ANN ARBOR 12:15 PM	0									
I FLINT 12:45 PM	1		1							
I CHICAGO 1:05 PM	1			1						
G DETROIT 1:15 PM*	2			2						
G G. RAPIDS 1:50 PM	3		2	1						
I CHICAGO 3:25 PM	0									
G DETROIT 4:15 PM*	5		2	2						1
G ANN ARBOR 4:30 PM	1			1						
G G. RAPIDS 5:00 PM	3			3						
I FLINT 5:20 PM	3			2			1			
G TRAV CITY 6:00 PM	8		1	3	2		1		1	
I CHICAGO 7:20 PM	2			1						1
G DETROIT 7:40 PM*	5		2	2			1			
I FLINT 8:20 PM	4			4						
G G. RAPIDS 9:00 PM	7			7						
TOTAL	48	9	31	2	0	3	0	0	1	2
PERCENT	100.00%	18.75%	64.58%	4.17%	.00%	6.25%	.00%	.00%	2.08%	4.17%

* TWO BUSES

TABLE 3-8

SUMMARY OF INTER-CITY BUS PASSENGER ARRIVALS
 TUE OCT. 12, 1993
 E. LANSING GREYHOUND BUS DEPOT

BUS ID & TIME	NO. OF ARRIVAL	LOCAL MODE								
		WALK	PICK UP	CATA BUS	MSU BUS	TAXI	AUTO PASS (PARKED)	AUTO DRIVER	BIKE	UN KNOWN
I CHICAGO 7:15 AM	0									
I FLINT 8:20 PM	0									
G DETROIT 8:40 AM	2	1				1				
G G. RAPIDS 9:50 AM	1					1				
I CHICAGO 10:55 AM	0									
G ANN ARBOR 12:15 PM	0									
I FLINT 12:45 PM	0									
I CHICAGO 1:05 PM	0									
G DETROIT 1:15 PM	0									
G G. RAPIDS 1:50 PM	2	1	1							
I CHICAGO 3:25 PM	0									
G DETROIT 4:15 PM	0									
G ANN ARBOR 4:30 PM	0									
G G. RAPIDS 5:00 PM	5	5								
I FLINT 5:20 PM	0									
G TRAV CITY 6:00 PM	0									
I CHICAGO 7:20 PM	0									
G DETROIT 7:40 PM	0									
I FLINT 8:20 PM	0									
G G. RAPIDS 9:00 PM	4	2						2		
TOTAL	14	9	1	0	0	2	0	2	0	0
PERCENT	100.00%	64.29%	7.14%	.00%	.00%	14.29%	.00%	14.29%	.00%	.00%

TABLE 3-9

SUMMARY OF INTER-CITY BUS PASSENGER DEPARTURES
TUESDAY OCT. 12, 1993

E. LANSING GREYHOUND BUS DEPOT

BUS ID & TIME	NO. OF DEPART	MSU STUDENTS	MODE OF ARRIVAL					AUTO PASS (PARKED)	AUTO DRIVER	AUTO BIKE	UN KNOWN
			WALK	DROP OFF	CATA BUS	MSU BUS TAXI					
I CHICAGO 7:15 AM	1	0		1							
I FLINT 8:20 PM	1	0							1		
G DETROIT 8:40 AM	4	0	1			3					
G G. RAPIDS 9:50 AM	2	0	1	1							
I CHICAGO 10:55 AM	0	0									
G ANN ARBOR 12:15 PM	2	0		2							
I FLINT 12:45 PM	1	1		1							
I CHICAGO 1:05 PM	0	0									
G DETROIT 1:15 PM	2	2		1			1				
G G. RAPIDS 1:50 PM	1	0								1	
I CHICAGO 3:25 PM	2	1		2							
G DETROIT 4:15 PM	0	0									
G ANN ARBOR 4:30 PM	2	0		2							
G G. RAPIDS 5:00 PM	0	0									
I FLINT 5:20 PM	0	0									
G TRAV CITY 6:00 PM	1	1		1							
I CHICAGO 7:20 PM	2	2					2				
G DETROIT 7:40 PM	1	1		1							
I FLINT 8:20 PM	0	0									
G G. RAPIDS 9:00 PM	1	1		1							
TOTAL	23	9	2	13	3	0	3	0	1	1	0
PERCENT	100.00%	39.13%	8.70%	56.52%	13.04%	.00%	13.04%	.00%	4.35%	4.35%	.00%

* TWO BUSES

Overall Findings. The number of persons boarding and de-boarding intercity buses on a typical "peak-day" is approximately 270. During the peak hour, this number was approximately 80 persons.

The predominant access mode for the intercity bus terminal was drop-off and pick-up by a friend or relative, although a significant portion of the passengers walked to and from the terminal.

It can be seen from the survey results that most of the activity at the existing East Lansing Intercity bus terminal is related to trips made by MSU students. Students attend classes during the week and visit friends or go home for weekends.

Greyhound and Indian Trails personnel indicated that the level of activity on Tuesdays and Wednesdays is very low, increases somewhat on Thursdays, and peaks on Fridays. Sunday is also a busy day, with a large number of arrivals. Monday is busier than Tuesday, again with more arrivals than departures. The intercity carrier station agents confirmed that the observations recorded by the survey are typical of mid-week and Friday patterns.

Future Intercity Travel Patterns. The experience of intercity passenger carriers over the past decade has been somewhat mixed, particularly in the case of intercity bus lines. While intercity bus patronage has declined overall in recent years, intercity rail travel via Amtrak has remained relatively constant or has shown modest increases, due to both the initiation of service with improved equipment, expanded Thruway bus service connections, and a relatively lower fare structure than that charged for long distance trips by competing intercity bus operators. On the other hand, intercity bus carriers have had to increase their fares in recent years in order to attempt to fully cover their increasing direct operating costs, particularly labor, fuel, and capital rolling stock.

Recent indications by the intercity bus carriers serving the East Lansing area suggest that many of their intercity passenger routes are at best only marginally profitable, and that revenues from expanded package express and freight operations frequently spell the difference between profit and loss on a particular route. While this trend is generally expected to continue in the near future, the potential for substantial increases in both intercity bus and intercity rail ridership as a result of changes in energy costs, and governmental policies enacted as a result of the Clean Air Act Amendments (CAAA) and the Intermodal Surface Transportation Efficiency Act (ISTEA), presents an uncertain future in which to forecast patronage.

We are, however, confident that, given competitive fare structures, the currently observed intercity bus ridership levels will not further diminish. On the contrary, we are of the opinion that they should increase at least on the order of 10-15% in response to the existence of a new, multimodal transportation terminal facility and the provision of improved passenger amenities such as adequate amounts of short-term and long-term parking and connectivity directly to the MSU bus system.

For this reason, it was felt most appropriate for this project to employ the best estimates of the various intercity carriers themselves as to the size of terminal facilities which they judged to be needed over the next 15 to 20 years, based on their experience in similar sized urban areas across the country. A description of these intercity carrier program requirements is contained in the following sections of this chapter along with a description of the major intercity terminal activities and linkages, and the subsequently developed preliminary architectural space program.

Major Activities and Functional Linkages

The major transportation related elements that would be accommodated within the proposed intermodal, intercity terminal facility are the intercity bus and rail passenger ticketing and waiting areas, the package express and freight areas, and the intercity bus arrival and departure areas. Outside areas include local CATA and MSU bus stops, the Amtrak platform areas, private auto pick-up / drop-off and parking areas, and taxi/shuttle service stands. The major functional linkages between these various transportation activities are generally as illustrated on Figure 3-3.

Preliminary Architectural Space Program:

Using the functional area requirements provided by each of the intercity carriers and generally accepted design criteria for such facilities, a preliminary estimate of the total transportation and non-transportation related functional space requirements was developed for the proposed intermodal terminal facility. Table 3-10 summarizes these program requirements in terms of the "consolidated" total space program incorporating potential opportunities for the coordinated use of physical space elements (such as waiting areas) which would otherwise have to be separately provided by each carrier.

As illustrated on Table 3-10, it is estimated that through consolidation of passenger waiting areas, potential retail functions (newsstand and food service, etc.), and public facilities such as

restrooms and parking areas, the functions of the proposed East Lansing intermodal facility could be accommodated in a total site area of approximately 151,600 square feet or about 3.48 acres.

Long term parking requirements for 125-135 parking spaces represents by far the largest single site component at 1.15 acres. If it were possible to provide convenient off-site parking space to accommodate the needs of facility employees and long term parkers, the minimum site area could be reduced to approximately 1.75 acres.

LOCAL CATA/MSU TERMINAL FACILITY

Both CATA and the Michigan State University (MSU) bus systems have long recognized the need to provide expanded joint terminal facilities and service coordination opportunities between their two services. Such improved coordination would be of benefit to university students, university faculty and staff, and other residents of the East Lansing area, particularly those persons within these potential user groups without easy access to an automobile.

The recently prepared Campus Transportation and Parking Study¹ recommended the construction of such a facility near the intersection of Shaw Lane and Farm Lane in the central portion of the Michigan State University campus. The potential services/functions illustrated on Table 3-11 represent the consensus opinion of the Technical Advisory Committee as those to be included in any such new facility.

The next step in this process is to discuss the general size of each recommended program element. It is anticipated that the CATA and MSU route operations (both the vehicular circulation areas and the associated passenger waiting areas to accommodate patronage demands during periods of inclement weather and between classes) will require the greatest amount of space. Three primary factors will determine how much space is required to accommodate these functions: the peak number of CATA and MSU buses to be accommodated at the facility at any given time; the physical configuration of the bus loading and unloading areas; and the estimated number of boarding, alighting and transferring passengers.

At the present time, four(4) CATA routes (Route Nos. 17, 19, 20, and 21) provide local service in the East Lansing / MSU area. These routes operate on a timed transfer basis from

¹ Implementation Program - Campus Parking and Transportation Study, Michigan State University, East Lansing, Michigan, October, 1989.

Table 3-10 INTERMODAL TRANSFER CENTER

Design Program, 6 December 1993

BUILDING PROGRAM

From "East Lansing - Intermodal Passenger Terminal Site Analysis", June 1990.

	NET AREA (Sq. Ft.)	NET SUB-TOTALS	GROSS TOTALS
A Public Areas		2,750	
1 Lobby and Seating (75 seats)	1,400		
2 Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newsstand, gift shop, etc.)	250		
6 Food Service Tenant Area	500		
B Bus Service Area		1,000	
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
C Rail Service area		1,000	
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
D Maintenance Area		250	
1 Janitorial	100		
2 Grounds	150		
E Circulation/Mechanical (33%)		1,500	
TOTAL GROSS BUILDING AREA			6,500

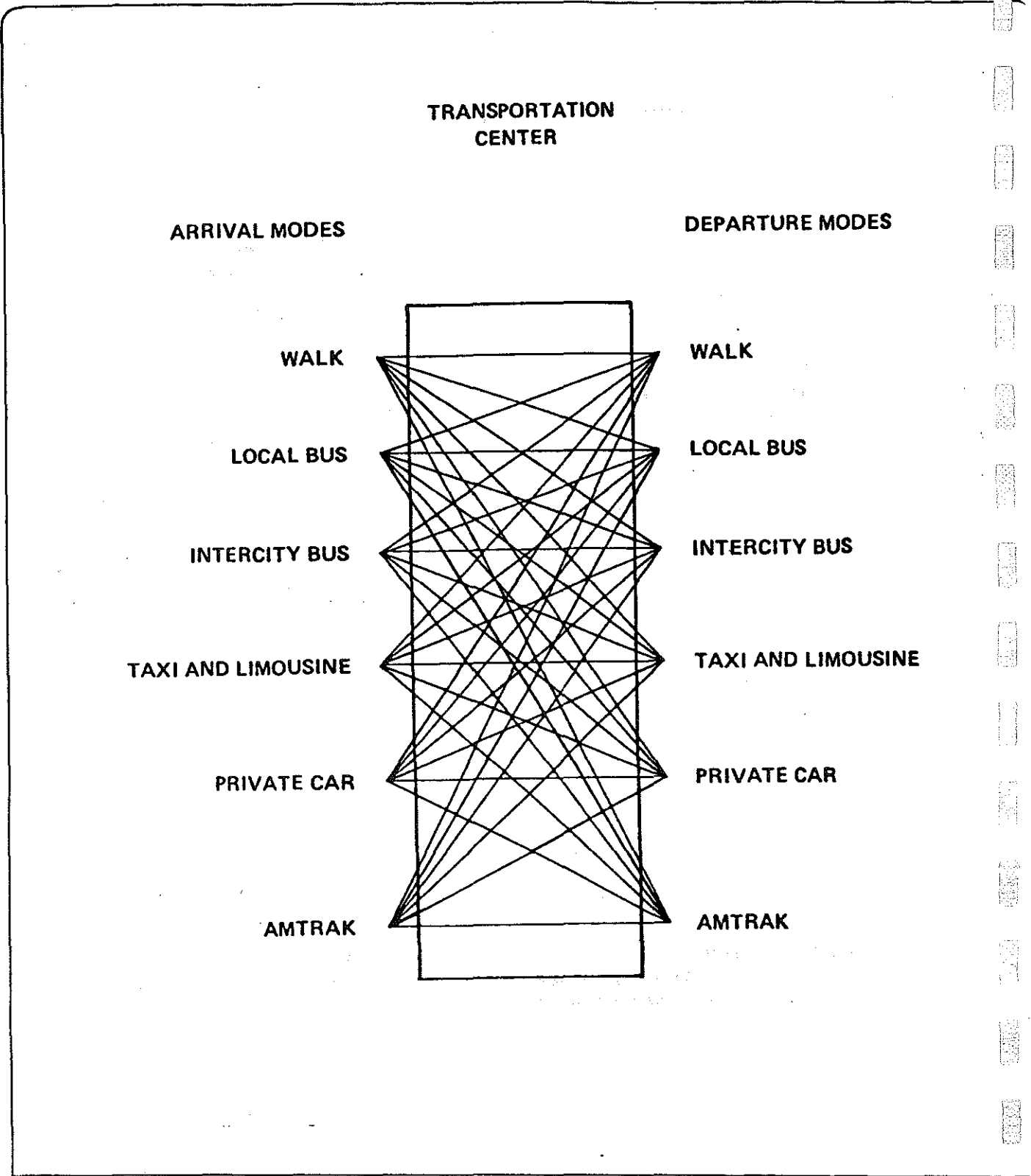
SITE PROGRAM

A Bus Boarding Bays, 5 Buses (2000sf. each)	10,000		
Greyhound - 2 Bays			
Trailways - 2 Bays			
Spare - 1 Bay			
B Boarding Platform for Rail Service	4,000		
C Short Term Parking, 30-35 Spaces (500sf. each)	17,500		
D Long Term Parking Spaces, 110-125 Spaces (500sf. ea.)	62,500		
E Employee Parking, 10-15 Spaces (500sf. each)	7,500		
F Taxi/Shuttle Service Area	2,500		
Sub-Total		104,000	
G Site Circulation, 20%	20,800		
H Landscape and Setbacks, 20%	20,800		
I Building Area	6,000		
TOTAL SITE AREA, Square Feet			151,600
TOTAL SITE AREA, Acres			3.48

ALTERNATE #1

Long term parking is by far the largest site component at 1.15 acres.

The minimum site area could be reduced to approximately 1.75 acres if convenient off-site parking is provided.



North
Schematic

Figure 3-3

POTENTIAL MODAL TRANSFERS

Table 3-11
CATA/MSU TRANSIT TRANSFER CENTER
Preliminary Design Program, January 1994

BUILDING PROGRAM

	<u>Net Area (Sq.Ft.)</u>	<u>Net Sub-Totals</u>	<u>Gross Totals</u>
A Public Areas		2,450	
1 Enclosed Lobby and Waiting Area	1,200		
2 Public Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newsstand, gift shop, etc.)	500		
6 US Postal Service self service center	150		
B CATA Sales and Distribution Area		500	
1 Counter and Work Area	250		
2 Office	250		
C MSU Sales and Distribution Area		500	
1 Counter and Work Area	250		
2 Office	250		
D Driver Break Areas		400	
1 MSU	200		
2 CATA	200		
E Maintenance Area		250	
1 Janitorial	100		
2 Grounds	150		
F Circulation / Mechanical (33%)		1,355	
TOTAL GROSS BUILDING AREA			5,455

SITE PROGRAM

A CATA Bus Boarding Bays, 5 @ 2,000 sq.ft. ea	10,000		
B MSU Bus Boarding Bays, 3 @ 2,000 sq.ft. eac	6,000		
C Taxi/Shuttle Service Area	2,500		
Subtotal		18,500	
D Site Circulation (20%)	3,700		
E Landscaping and Setbacks (20%)	3,700		
F Building Area	5,455		
TOTAL SITE AREA, Square Feet			31,355
TOTAL SITE AREA, Acres			0.7

the existing on-street transfer point located along Albert Street between Division Street and Charles Street. Current service headways of 30 minutes throughout the day (40 minutes on Route 21) require that only a single bus be assigned to each of these four routes. In addition, CATA Route 1 - Churchill/Southwest operates through the East Lansing area along Grand River Boulevard but does not deviate off of Grand River Boulevard to pass by the transfer point. Weekday service frequency on Route 1 is 10 minutes between 6:00 AM and 6:00 PM, and 15/30 minutes after 6:00 PM. If it is assumed that existing CATA operational practices are to be continued, space for four(4) CATA buses would be required in a new, consolidated terminal facility.

Similarly, the Michigan State University bus system currently operates three routes (Brody-Hubbard, Spartan Village, and Commuter Shuttle) throughout the day. The average service frequency on these routes is approximately 12 minutes on Brody-Hubbard, 18 minutes on Spartan Village, and 15 minutes on the Commuter Shuttle route. Although these routes do not operate on a formal, timed transfer schedule, the combination of service frequency and round trip route time effectively results in this situation taking place. Thus, for the purposes of this discussion, a timed transfer MSU operation will be assumed to represent the near term future condition. This translates into a requirement for three(3) MSU bus system loading berths at the consolidated terminal facility.

In addition to the primary CATA and MSU bus loading berth requirements, consideration should also be given to occasional use of the transfer facility by other bus operations. These might represent local or regional tour operators, a Greyhound or Indian Trails bus passing through the campus in the late evening hours, or a similar operation. Although the magnitude of this "occasional" usage cannot be explicitly quantified, it would be realistic to expect a requirement for no more than one additional bus berth. Thus, the total loading berth requirement at the consolidated on-campus transfer facility has been estimated to be equal to 4 CATA buses + 3 MSU buses + 1 "Other" bus = 8 bus bays.

The second major space consideration in planning the transfer facility is the physical configuration of each of the various bus berths. The two basic options are in-line berths or "sawtooth" berths. Based upon review of a number of alternative transfer center configurations, it was ultimately recommended by the members of the project technical advisory committee that the bus berths at the consolidated CATA / MSU bus transfer facility be of the in-line rather than the sawtooth configuration, and that sufficient space be provided between bus so as to allow a bus to pull in and out with other buses parked. The use of this bus berthing configuration would allow for the existing curb line at the site to be used without the need for major reconstruction of roadway pavement or associated drainage structures. It was also judged that this configuration would greatly facilitate snow removal activities during

periods of inclement weather.

As noted earlier, the anticipated number of waiting and transferring passengers represents the third principal design factor in sizing such a bus to bus transfer facility. Information provided by CATA indicates that the present average number of combined boardings and alightings on the four routes operating through the East Lansing transfer center over the course of a typical weekday is approximately 150 persons. The peak design load is presently estimated to be approximately 10 passengers per route, and would be expected to increase to approximately 15 passengers per route (or a total of approximately 60 total passengers for all four routes) with the provision of a new on-campus terminal facility.

Similarly, information provided by the MSU bus operation indicates that the average weekday number of combined boardings and alightings on the three routes serving the central campus area is 1,550 persons daily. This is further broken down into approximately 700 boardings daily and 850 alighting passengers. The peak hour for boardings is during the mid afternoon period, with a combined total of approximately 70 passenger boardings. It is anticipated that this will increase to between 85-100 boarding passengers with the provision of a new, multi-purpose combined MSU/CATA transit facility. With these 100 MSU passengers added to the estimated 60 CATA passengers, the estimated peak hourly combined boardings at the consolidated facility would be approximately 160 persons. Since there would obviously be some degree of "double counting" between these CATA and MSU bus riders, this value of 160 persons probably represents a conservatively high estimate of the actual peak design hour demand volume.

Chapters 12 and 13, respectively, of the Highway Capacity Manual² discuss transit and pedestrian capacity factors. This document and other similar references speak to the concepts of "level of service" and "comfort level" for persons waiting to board bus or rail transit vehicles. Several larger public transit systems in the United States and Canada have employed similar general design criteria to define maximum desirable crowding levels. For the purposes of this exercise, a value of 10 square feet per waiting passenger has been used to "size" the CATA/MSU transfer station waiting platform area.

Applying this value of 10 square feet per passenger to the estimated 160 peak waiting passengers results in a required waiting area (enclosed or outdoor) of approximately 1,600 square feet. This estimated space requirement should, however, be reduced to reflect the frequency of the service operated and by the peak load factor within the design hour. The suggested reduction for the proposed CATA/MSU terminal is a factor of 50%, which results in

² Highway Capacity Manual, Special Report 209; Transportation Research Board, National Research Council; Washington, DC; 1985.

a minimum space requirement of $(1,600 \text{ sq.ft.}) \times (0.50) = 800 \text{ sq.ft.}$ for the estimated 80 peak waiting passengers.

Regardless of the final recommended size or configuration of the CATA/MSU transfer facility, some portion of the passenger waiting area should be located within an enclosed, weather protected structure in recognition of the severe climatic conditions which exist in the East Lansing area during the winter months. Consideration should also be given to potential ridership growth. Given the frequency of CATA and MSU bus operations that would be serving the transfer facility, the need will likely exist to accommodate approximately 25 percent of the total estimated hourly boarding and/or transferring passengers at any given time. This results in a demand to shelter approximately 90 persons. At an assumed waiting area requirement of 10 sq.ft. per person, this translates into the need for an enclosed waiting area of approximately 900 sq.ft.

In addition to this passenger waiting area, and associated CATA and MSU ticket sales and traveller information areas, CATA and MSU driver break areas, and restrooms, the potential exists for several other non-transportation functions to be included in this facility. These other functions would include a newsstand (on the order of approximately 250-300 sq.ft.), an area for food and drink vending machines (on the order of approximately 250-300 sq.ft.) and a self service postal facility (on the order of approximately 100-200 sq.ft.). Thus, the total combined non-transportation support functions which potentially be incorporated into the combined CATA/MSU transfer center would require between 600 sq.ft. and 800 sq.ft. of gross floor area.

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Chapter 4 - EVALUATION OF ALTERNATIVE SITES

Introduction:

One of the key elements of the Greater Lansing Public Transportation Coordination Study was the process of selecting and evaluating alternative locations for the proposed intercity terminal and CATA/MSU transfer facilities. The basic process followed was the same for the two separate facilities, and involved three interrelated activities. These were as follows: (1) the selection of initial sites to be evaluated; (2) a field reconnaissance of each of the individual sites for the collection of basic data, which was followed by an analysis of this information; and (3) the development and application of quantitative and qualitative criteria for the evaluation and comparison of each of the various sites.

It should be particularly noted that several of the alternative sites examined were potentially identified as candidates for both the intercity terminal and the CATA/MSU on-campus transfer center. However, each of these sites was independently evaluated as an alternative location for each type of facility. The various locations chosen for evaluation were identified from a variety of sources, including past studies of intercity terminal facilities in the City of East Lansing, recently completed planning studies for Michigan State University, and comments by the membership of the project's Technical Advisory Committee.

Alternative Sites Considered:

The primary factors which led to the selection of the ten(10) possible intercity terminal and five(5) possible CATA/MSU transfer facility sites illustrated on Figure 4-1 were somewhat varied in the nature of their intended objectives. For example, several of the intercity terminal sites were selected to illustrate potential economies or efficiencies possible through the improved utilization of existing transportation facilities, i.e., the existing Amtrak station (Site IM-1) and the existing East Lansing intercity bus terminal (Site IM-9). Conversely, several of the CATA/MSU transfer center sites (Site CM-1, CM-4, and CM-5) were selected due to the present existence of similar functions at these locations, in the case of Site CM-5 the Albert Street timed transfer point for CATA's East Lansing local bus routes, and in the case of Site CM-1 the location of a major MSU bus stop and route to route transfer point.

Particularly in the case of the potential intercity terminal sites, locational choices were heavily influenced by whether or not a site was located adjacent to a section of the Grand Trunk Railroad line over which Amtrak service is operated (Sites IM-1, -2, -3, -4, -5, -6, -7, and -8). Sites IM-9 and IM-10 were carried through the evaluation process to illustrate the

PRELIMINARY SITE REVIEW

Potential Sites:

- ◆ CATA / MSU Transfer Center (CM)
- Intermodal Transfer Facility (IM)

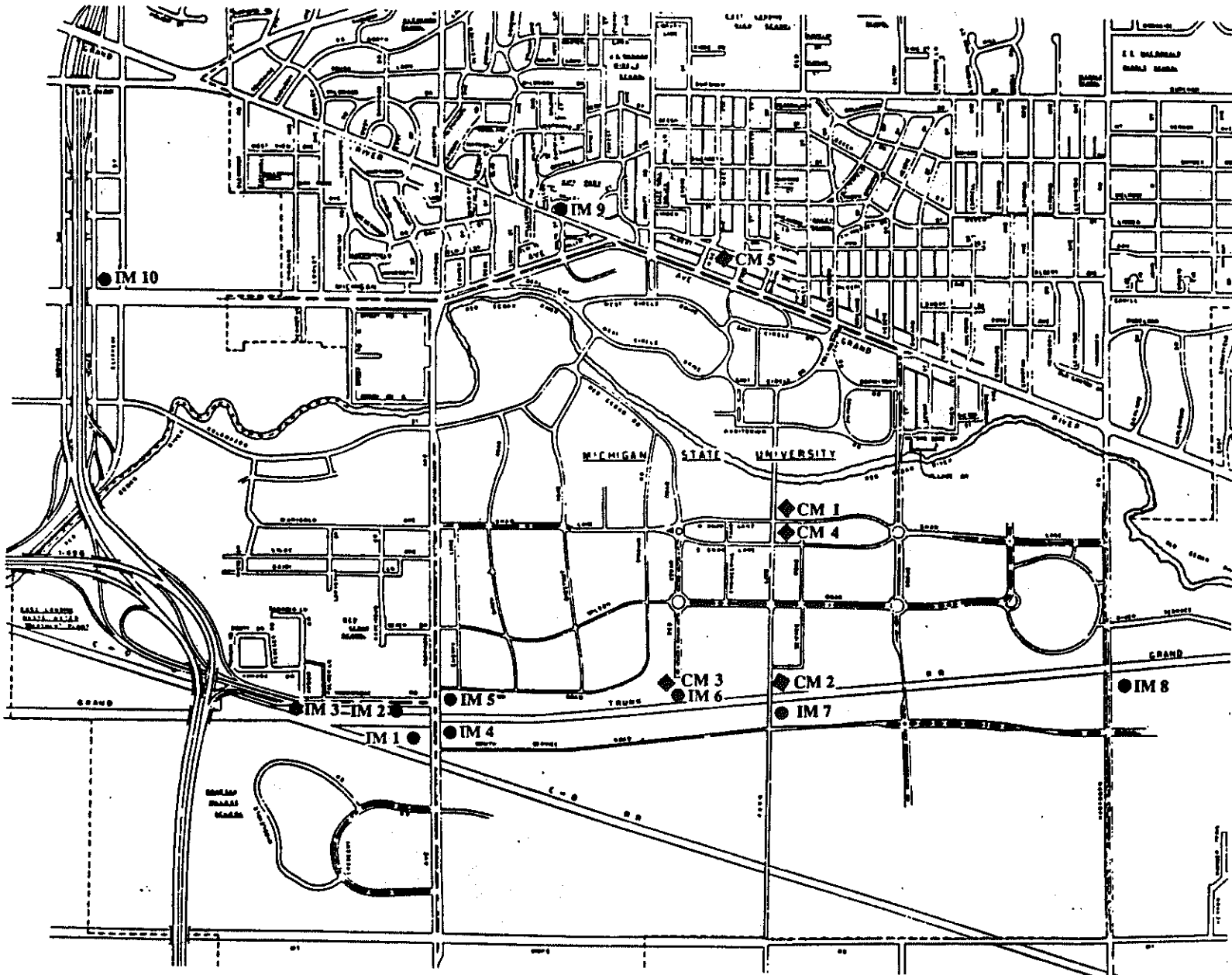


Figure 4-1



1 October 1993

Prepared by Quinn Evans / Architects

relative advantages and disadvantages of locations suited only to use by intercity bus operators due to their distance from the Grand Trunk Railroad line.

Similarly, the selection of potential CATA/MSU transfer center sites was influenced by the proximity of these locations to current and planned campus development and previously identified sites for such a facility. For example, the recently completed university traffic and parking study suggested Site CM-4 as the location of an off-street transfer facility for the MSU bus system.

Data Collection:

Once a tentative consensus had been achieved among the members of the Technical Advisory Committee and consultant team staff as to which sites should undergo further analysis, the next step of the site selection process was set in motion. Primarily, this stage consisted of the conduct of a field reconnaissance of each site and the collection of all relevant data. During this process, notes and observations were made on all significant man-made and natural features and were recorded in a standardized format to facilitate future comparisons. Additional information was gathered regarding the existence of public utilities such as sanitary and storm sewers, water lines and the availability of gas and electric service.

A separate inventory was made of each alternative site documenting the site's boundaries, its general characteristics, existing on-site buildings and activities, and adjacent land uses. An example of this site inventory form is presented on the following page, with copies of all of the inventory sheets for both the intercity and CATA/MSU transfer center sites contained in Appendix 4-1.

Development and Application of Site Evaluation Criteria:

With the majority of the site characteristics data collected, Stage 3 of the process was initiated. This included both the selection of the criteria by which to evaluate the various intercity and CATA/MSU transfer center sites and the development of a system by which the alternative sites could be qualitatively compared. A discussion of the development and application of the different site evaluation criteria employed for, respectively, the intercity and CATA/MSU transfer center sites is presented in the following paragraphs.

Table 4-1
Preliminary Site Review
PHYSICAL EVALUATION

CATA / MSU TRANSFER CENTER

SITE #1

DATE PREPARED:	1 October 1993
LOCATION:	Site #1 is located at the northeast corner of Farm Lane and westbound Shaw Lane. It is at the geographical center of the main MSU campus, approximately 7/10 of a mile from downtown East Lansing. The site is well located to serve both the MSU Campus and downtown East Lansing.
DESCRIPTION:	The site is bounded by the Red Cedar River (north), Shaw Hall (east), westbound Shaw Lane (south), and Farm Lane (west). It slopes severely to the northeast, from the corner of Farm Lane to the Red Cedar River. The present bus parking and access road is a full story below the intersection of Farm and Shaw.
CURRENT USE:	The site is the present location of the central campus bus system transfer stop. A faculty and staff parking lot is also located on the site.
SITE OWNERSHIP/ AVAILABILITY:	The site is owned by MSU. It is our understanding that MSU would make the site available for a CATA/MSU Transfer Center.
SIZE/ CONFIGURATION:	The site is pie shaped, with approximately 350ft of frontage on both Farm and Shaw lanes. It is approximately 1.41 acres in size.
SITE VISIBILITY:	Located at the geographical center of the main campus and at the corner of Shaw and Farm Lanes, the site is one of, if not <i>the</i> , most highly visible sites on campus. A high volume of both vehicular and pedestrian traffic pass the site each day.
PEDESTRIAN/ BICYCLE ACCESS:	Site #1 is at the hub of on campus pedestrian and bicycle routes. East-west pedestrian and bicycle routes follow the Red Cedar River and converge at Farm Lane at the site. Campus services, such as the International Center, are also located in this area, as is a large amount of campus and visitor parking.
VEHICULAR ACCESS:	Shaw Lane is the principal east-west campus vehicular circulation route and Farm Lane is the principal north-south route. The site is, therefore, ideally situated for on-campus vehicular circulation. In addition the largest concentration of on campus parking is located in the Shaw Lane 'corridor,' within a 1/4 mile of the site. Access to the site is off both Shaw and Farm Lanes.
BUS ACCESS:	As with vehicular circulation, the site is well suited for bus access. Major east-west and north-south routes converge at the intersection of Shaw and Farm Lanes. Bus access to the site is made somewhat difficult by the divided one-way pair at Shaw Lane. Southbound traffic on Farm Lane and eastbound traffic on Shaw Lane, wishing to access the site, must circle in front of the Planetarium, across the Shaw Lane median, to access the site. CATA bus access is somewhat difficult from Grand River Avenue. However, access from Harrison (west) or Hagadorn (east), along Shaw Lane is convenient.

Table 4-1
Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY

***SITE #1**

DATE PREPARED:	1 October 1993
LOCATION:	Site #1 is located on the west side of Harrison Road, just south of the Grand Trunk tracks and Trowbridge Road, between the Grand Trunk tracks and the Chesapeake and Ohio tracks. It is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area. It is approximately 1 1/2 miles from downtown East Lansing.
DESCRIPTION:	Site #1 is triangular in shape and is bounded by Harrison Road (East), the C&O tracks (Southwest), and the GTW tracks (North). The site has approximately 350lf of frontage along Harrison Road. It is a relatively flat site, at grade with the adjacent tracks. Access is off Harrison Road.
CURRENT USE:	The property is the site of the current AMTRAK station (serving the GTW tracks), as well as the Michigan State University printing and salvage yard operations.
SITE OWNERSHIP/ AVAILABILITY:	The property is owned by Michigan State University. Rights-of-way along the tracks are owned by the railroads. MSU has indicated that it is currently phasing out its operations on the site and is willing to discuss locating an intermodal facility there.
SIZE/ CONFIGURATION:	The site has an approximate area of 4.02 acres. However, railroad rights-of-way, the Harrison Road right-of-way, and the required setbacks will significantly reduce the usable area of the site.
SITE VISIBILITY:	The site is quite visible along Harrison Road, which it fronts. However, the more heavily traveled portion of Harrison Road and the commercial area is to the south of the site. Development regulations will require that any facility be set significantly back from Harrison Road, which will thus reduce its visibility.
PEDESTRIAN / BICYCLE ACCESS:	The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. The site is accessible by bicycle from campus and the downtown area.
VEHICULAR ACCESS:	The site is easily accessible by vehicle either regionally, from I-496 or M127 via the Trowbridge Road exit or locally, from Harrison Road.
BUS ACCESS:	As noted above, bus access is good. Buses can access the site from I-496 or M127 via the Trowbridge exit or from Harrison Road. A principal drawback to this location is that buses approaching the site from Trowbridge or from North Harrison must cross the GTW tracks just south of Trowbridge. This is a potential source of delay and may be unacceptable to the bus companies.

Table 4-1
RAIL ACCESS:

Site #1 is ideally suited to provide service to either the GTW or the C&O tracks, both of which converge at the western end of the site.

* Site #1 was also evaluated as a potential site in the "East Lansing Intermodal Passenger Terminal Site Analysis," June 1980.

Site Evaluation Criteria for Intercity Terminal Facilities. The following factors were used as the principal site evaluation criteria for examination of the potential intercity terminal facility sites:

1. Ownership/Availability -- A descriptor of the current ownership of the subject land parcel(s), i.e., City of East Lansing, Michigan State University, a private entity, etc. and the likelihood of purchase/transferral of ownership of the site for use as an intercity terminal.
2. Size/Configuration -- An assessment of the proposed site to ensure that it was large enough to allow for the proposed intercity terminal development program (a maximum of approximately 2.5 - 3.0 acres) and the degree to which the general shape of the site would limit or otherwise affect the proposed development.
3. Site Visibility -- A qualitative assessment of how well travellers approaching the site could locate the terminal facilities.
4. Location -- Assessed the potential for future use by persons associated with Michigan State University; the proximity of the site to the Grand Trunk Railroad line now served by Amtrak; and the distance between the site and the surrounding interstate and primary arterial highway system.
5. Accessibility -- Appraised the relevant ease by which the various possible modes of travel (local and intercity bus, private autos, pedestrians and bicycles, emergency vehicles, etc.) could travel to and from the site. The criteria for this judgement was a function of not only physical distance, but also route, traffic congestion, and time of day.
6. Existing On-Site Land Use -- Assessed existing buildings and land-use on the site to determine their compatibility with the proposed intercity terminal facility. When it was determined that the existing land use was not compatible, this criterion also assessed the likely level of effort required for demolition.
7. Existing Adjacent Off-Site Land Use -- Assessed surrounding land uses for their compatibility with the proposed intercity terminal facility and how sympathetic the surrounding area would be towards future development of services and other activities directly and indirectly related to the terminal facility. An additional factor considered was the potential for impact by the terminal facility (visual, noise, traffic, etc.) on any surrounding neighborhoods.

8. Impact on Natural Systems -- Use of these criteria provided a preliminary assessment of the natural features on or adjacent to the site which would have any potential to affect development.
9. Compatibility with Current Plans -- Assessed each site's potential compliance with the City of East Lansing Comprehensive Plan, the Michigan State University Master Plan, and the highway, transit, pedestrian and bicycle elements of the City, University and State transportation plans.
10. Existing Site Utilities -- Appraised the existence of existing utilities and the need to provide or upgrade services.
11. Construction Potential -- Assessed the relative ease or difficulty for construction of an intercity terminal facility at the proposed site. This topic considered such items as the potential need for fill, elevation changes, demolition, utility requirements, etc.

Description of Evaluation Methodology. The overall evaluation process had two phases. First, each of the candidate sites was compared to its peers against each of the individual criteria described above on a scale of 1 to 3, with a value of 1 representing "Poor" or "Worse than Average" satisfaction of the criteria, a value of 2 representing "Moderate" or "Average" satisfaction, and a value of 3 representing "Good" or "Better than Average" satisfaction of the criteria. This information was then presented in the form of an "unweighted" evaluation matrix. This provided a means by which to display how the performance of each of the various sites rated relative to each of the principal evaluation criteria and how each site compared when rated overall.

The use of such an "unweighted" evaluation matrix implies that while the ratings under each of the separate criteria are assigned values on a scale of 1 to 3, there is no implied comparison between the different criteria. In other words, there is no difference in the value assigned to any individual criterion in the matrix such as "location", "accessibility", "impact on natural systems", etc.; they all have the same value. The use of such a matrix where all of the elements are equally valued (or weighted) directs the individual evaluator to conclusions which have not been biased by the creator of the matrix. Moreover, by assigning numerical values on a scale of 1-3 to the performance of each of the alternative sites relative to each evaluation factor, a simplified rating can be applied to each of the sites which still is not biased.

Obviously, some of the sites will score much better relative to a particular criterion than others. For example, a site immediately adjacent to the Grand Trunk Railroad line would

score a 3 relative to the factor of "Distance to Railroad Line", while an alternative site at the location of the existing intercity bus terminal in East Lansing might only score a 1 relative to this same factor.

The members of the Technical Advisory Committee initially ranked each of the candidate sites on a scale of 1-3 relative to each of the stated criteria. For the most part, these ratings were qualitative in nature and based upon the individual committee members knowledge of the area and the sites in question. However, this range of knowledge was itself valuable in highlighting the practicality of each site. Once all of the sites have been ranked by each of the Committee members, a summary ranking of each site relative to each criteria was prepared by the Consultant team and shared with the Committee.

This approach works well until preferences (or "weights") are attached to some of the criterion. For example, avoiding a site which is habitually susceptible to flooding due to its proximity to a stream valley / wetlands area might be felt by a particular committee member to be a more desirable goal than how well the site could be viewed from the arterial street system. Thus, while this hypothetical site might receive 1 point (a "poor" rating) under the "Site Visibility" category, it might receive minus two (-2) points (a "terrible" rating) relative to the "Impacts on Wetlands/Stream Valleys" factor.

As a result, it was relatively easy to proceed down the left hand side of the matrix and rate the criteria (assign "weights") on the basis of individual preferences and concerns. This allowed for those criteria which were felt to be relatively more important than others to be rated higher or lower and to thus more accurately reflect the consensus of the individual evaluator. Furthermore, the assignment of such personal biases to the matrix allowed for each of the principal participants in the study (the intercity bus companies, Amtrak, Michigan State University, the City of East Lansing, etc.) to evaluate the sites with a slant towards their own individual preferences.

The Technical Advisory Committee membership was thus also responsible for the assignment of "Weights" to each of the various criteria. For the purposes of this project, 100 weighting points were used, spread over all of the criteria. Once the individual committee members had weighted the various criteria, an average composite weighting value for each evaluation factor was determined and these weighting factors applied to the unweighted, completed site evaluation matrix to determine its effect on the ranking of the alternative sites.

The lower portion of Table 4-2 on the following page presents the "Total Score" of each alternative site relative to its performance against the various evaluation criteria. This "Score" is an unweighted total of the values between 1 (worst) and 3 (best) assigned to the performance of each alternative site relative to each of the respective evaluation factors by

Greater Lansing Transit Coordinat
AVERAGES

	PARTICIPANTS' AVERAGES										SUMMARY AVGS.	OVERALL AVERAGES									
	1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10
Ownership/Availability	2.64	1.79	2.36	2.07	1.64	1.93	1.86	1.50	2.07	1.93	2.64	6.99	4.72	6.23	5.48	4.34	5.10	4.91	3.97	5.48	5.10
Size/Configuration	2.29	1.36	1.14	2.21	1.86	2.50	2.43	2.64	1.21	1.57	7.28	16.65	9.88	8.32	16.13	13.53	18.21	17.09	19.25	8.84	11.45
Site Visibility	2.43	2.79	1.57	2.36	2.64	1.50	1.29	2.07	2.00	2.50	3.98	9.67	11.10	6.26	9.39	10.53	5.96	5.12	8.25	7.97	9.96
Location																					
Distance to MSU Core	2.43	2.36	1.57	2.36	2.36	2.36	2.29	2.00	1.86	1.43	5.73	13.92	13.51	9.01	13.51	13.51	13.51	13.10	11.47	10.65	8.19
Distance to RR Line	2.79	2.79	2.36	2.64	2.43	2.43	2.43	2.29	1.29	1.29	9.54	26.59	26.59	22.50	25.22	23.18	23.18	23.18	21.81	12.27	12.27
Distance to Arterial Hwy.	2.93	3.00	2.50	2.79	2.79	1.79	1.64	1.64	1.64	2.50	8.56	25.07	25.68	21.40	23.85	23.85	15.29	14.06	14.06	14.06	21.40
Accessibility																					
Local/Intercity Bus	2.29	2.79	2.29	2.21	2.71	2.14	1.57	1.86	2.14	2.64	10.53	24.06	29.32	24.06	23.31	28.57	22.56	16.54	19.55	22.56	27.82
Private Vehicular Traffic	2.21	2.64	2.29	2.21	2.57	2.07	1.79	2.14	2.00	2.79	9.66	21.39	25.53	22.06	21.39	24.84	20.01	17.25	20.70	19.32	26.91
Pedestrian/Bicycle	2.21	2.50	2.00	2.00	2.57	2.57	2.14	2.21	2.29	1.86	7.11	15.74	17.78	14.22	14.22	18.28	18.28	15.24	15.74	16.25	13.20
Emergency Vehicles	1.86	2.50	2.07	2.00	2.50	2.21	1.79	2.21	2.14	2.50	4.62	8.59	11.56	9.58	9.25	11.56	10.24	8.26	10.24	9.91	11.56
Existing On-Site Land Use																					
Compatibility with Terminal	2.50	2.14	2.29	2.29	2.21	2.29	2.07	2.07	2.14	2.29	1.48	3.71	3.18	3.39	3.39	3.28	3.39	3.07	3.07	3.18	3.39
Need for Demolition	2.07	2.14	2.36	2.50	2.50	2.50	2.50	2.29	1.86	2.00	1.07	2.21	2.29	2.51	2.67	2.67	2.67	2.67	2.44	1.96	2.13
Existing Adjacent Off-Site Land U																					
Compatibility with Terminal	2.43	2.21	1.93	2.14	2.00	2.00	1.86	2.00	1.86	2.00	2.52	6.11	5.57	4.85	5.39	5.03	5.03	4.67	5.03	4.67	5.03
Potential for Additional Support Facility Development	2.29	1.93	1.71	2.14	2.14	2.14	1.86	2.07	1.57	2.07	2.07	4.72	3.99	3.54	4.43	4.43	4.43	3.84	4.28	3.25	4.28
Potential for Impacts on Residential Neighborhoods	2.43	2.07	1.86	2.21	2.14	2.29	2.21	2.07	1.71	2.07	3.78	9.19	7.84	7.03	8.38	8.11	8.65	8.38	7.84	6.48	7.84
Impact on Natural Systems																					
Wetlands/Stream Valleys	2.64	2.64	2.57	2.29	2.29	2.21	1.93	2.36	2.50	2.64	2.96	7.81	7.81	7.60	6.76	6.76	6.55	5.70	6.97	7.39	7.81
Impact on Flora	2.43	2.43	2.43	2.14	2.07	2.07	1.64	2.21	2.43	2.43	2.79	6.78	6.78	6.78	5.96	5.78	5.78	4.58	6.18	6.78	6.78
Impact on Fauna	2.64	2.64	2.64	2.36	2.36	2.29	1.86	2.43	2.50	2.64	2.76	7.29	7.29	7.29	6.50	6.50	6.30	5.12	6.69	6.69	7.29
Compatibility with Current Plans																					
City Comprehensive Plan	2.50	2.43	2.21	2.29	2.07	2.07	1.86	2.07	2.00	2.14	1.92	4.79	4.65	4.24	4.38	3.97	3.97	3.56	3.97	3.83	4.11
MSU Master Plan	2.50	2.29	2.21	2.07	1.79	1.93	1.57	2.00	2.07	2.29	1.98	4.96	4.53	4.39	4.11	3.54	3.83	3.12	3.97	4.11	4.53
Regional Transportation Plan	2.29	2.21	2.14	2.14	1.93	1.86	1.64	1.93	1.86	2.14	1.92	4.38	4.24	4.11	4.11	3.70	3.56	3.15	3.70	3.56	4.11
Existing Site Utilities	2.50	2.50	2.00	2.14	2.07	1.86	1.79	2.14	2.43	2.64	1.79	4.48	4.48	3.59	3.84	3.71	3.33	3.20	3.84	4.36	4.74
Construction Potential	2.71	2.36	2.07	2.50	2.29	2.14	2.07	2.29	1.86	2.36	3.30	8.99	7.78	6.84	8.25	7.54	7.07	6.84	7.54	6.13	7.78
SUMMARY SITE RATING	56.00	54.50	48.57	52.07	51.93	49.14	44.07	48.50	45.43	60.71	100.00	244.05	246.10	209.81	229.92	237.21	216.90	193.24	210.56	189.91	217.67
TOTAL SCORES	784	763	680	726	727	688	617	679	636	710		3417	3445	2937	3219	3321	3037	2705	2948	2656	3047

Table 4-2

each participant. In some instances, evaluators assigned negative values (i.e., a value of -3) to the site evaluations to indicate where they believed that a potential "fatal flaw" existed relative to a particular site. The resulting unweighted ranking of all ten(10) candidate sites (based upon the maximum number of points received) are as shown below:

<u>Rank</u>	<u>Site No.</u>	<u>Score</u>
1	1 - West of Harrison Road, south of tracks	784
2	2 - West of Harrison, between Trowbridge and tracks	763
3	4 - East of Harrison, between GTW and C&O tracks	729
4	5 - East of Trowbridge/Harrison on MSU campus	727
5	10 - Northeast corner E.Michigan Ave./Homer St.	710
6	3 - South of Trowbridge, just east of I-496	688
7	6 - MSU Campus at south end of Red Cedar Road	680
8	8 - East of Hagadorn Road, between RR and Service Rd.	679
9	9 - Northeast corner of Grand River and Valley Court	636
10	7 - Southeast corner of Farm Lane and RR tracks	617

The average score for each site was 716.8 points, with the highest and lowest scores being, respectively, 12.9 percent above and 12.5 percent below this average value.

As would be expected, those sites located relatively close to the Grand Trunk Railroad Line over which Amtrak intercity rail service is currently operated were all in the top five. Similarly, those sites located away from the rail line fell into the bottom half of the ranking.

As discussed at a number of Advisory Committee meetings, there was considerable interest expressed in combining Sites IM-1 and IM-2, and designating the resultant location as "Site IM-11". While several participants in the evaluation process considered this new alternative, the majority did not explicitly do so. Thus, the summary results were only able to consider a total of ten sites. However, if the average of the individual scores for Sites IM-1 and IM-2 is considered to be representative of what would otherwise be the results of an evaluation of such a separate Site IM-11, this "new" alternative site would have received an unweighted score of 743 points, placing it in the top five overall.

Table 4-3 illustrates a comparable summary for the allocation of weighting points as assigned by the various evaluators. The three columns labelled "Consultant", "Public Agency" and "Intercity Carrier" represent the averages of the individual weighting point allocations made by those evaluators falling into each separate category. The column labelled "Average Weighting" represents the mathematical average of the three preceding columns.

Table 4-3
 SITE EVALUATION CRITERIA - WEIGHTING FACTORS
 Intercity Terminal Site Location Assessment
 Greater Lansing Transit Coordination Study

SITE EVALUATION CRITERIA	CRITERIA WEIGHTING			Avg. Weighting
	Consultants	Public Agencies	Intercity Carriers	
Ownership/Availability	2	3	3	2.6
Size/Configuration	8	10	4	7.2
Site Visibility	2	5	5	3.9
Location				
Distance to MSU Core	5	7	5	5.7
Distance to RR Line	8	12	9	9.5
Distance to Arterial Hwy.	8	9	9	8.5
Accessibility				
Local/Intercity Bus	9	10	13	10.5
Private Vehicular Traffic	9	8	11	9.0
Pedestrian/Bicycle	9	6	6	7.1
Emergency Vehicles	5	4	5	4.6
Existing On-Site Land Use				
Compatibility with Terminal	1	1	2	1.4
Need for Demolition	1	1	1	1.0
Existing Adjacent Off-Site Land Use				
Compatibility with Terminal	2	3	3	2.5
Potential for Additional Support Facility Development	2	3	2	2.0
Potential for Impacts on Residential Neighborhoods	5	4	2	3.7
Impact on Natural Systems				
Wetlands/Stream Valleys	4	2	3	2.9
Impact on Flora	4	2	3	2.7
Impact on Fauna	4	2	3	2.7
Compatibility with Current Plans				
City Comprehensive Plan	2	2	2	1.9
MSU Master Plan	2	2	2	1.9
Regional Transportation Plan	2	2	2	1.9
Existing Site Utilities	1	2	2	1.7
Construction Potential	4	2	4	3.3
Total Weighting Points	100	100	100	100.0

Those evaluation factors which received the five (5) highest ratings were as follows:

<u>Ranking</u>	<u>Evaluation Factor</u>	<u>Points</u>
1	Accessibility-Local/Intercity Bus	10.53
2	Accessibility-Private Vehicular Traffic	9.66
3	Distance to Railroad Line	9.54
4	Distance to Arterial Highway	8.56
5	Accessibility-Pedestrian/Bicycle	7.28

The average number of weighting points assigned to any evaluation factor was 4.35, with the highest number of points being assigned to the factor of **Accessibility - Local/Intercity Bus** (10.53 points) and the lowest number of points being assigned to the factor of **Existing On-Site Land Use / Need for Demolition** (1.07 points).

The final step in this process consisted of applying the average weighting factors for each of the individual evaluation criteria to the average unweighted score received by each of the alternative sites relative to that evaluation criteria. Table 4-4 summarizes the results of this exercise. As shown on this table, the weighted and unweighted rankings of the various alternative sites remained essentially the same, with sites typically shifting only one place in the overall rating scheme dependent upon whether unweighted or weighted scores were considered. For example, Sites IM-1 and IM-2, which were ranked 1 and 2, respectively, under the unweighted scoring were ranked 2 and 1, respectively, when the weighting factors were applied. Both of these sites were judged by the evaluators to be clearly superior to the other alternatives considered. Thus, conceptual site development plans were created for both sites, as well as for the combined Site No. 11.

CATA/MSU Transfer Facility Alternative Site Evaluation

This section of Chapter 4 presents a summary of the alternative evaluation process for the candidate CATA/MSU on-campus transfer facility sites previously identified. Similar to the alternative site evaluation and selection process for the potential Intercity Terminal Facilities, a systematic determination was made of the manner in which each of the various alternative sites for the potential CATA/MSU on-campus transfer center satisfy each of several evaluation criteria. The following factors were used as the principal transfer center site evaluation criteria.

1. Compatibility with Current MSU Plans - Assessment of each site's potential compliance with the Michigan State University Master Plan, both from a physical

Table 4-4
 SUMMARY OF INTERCITY TERMINAL SITE EVALUATION

Alternative Site	Unweighted Score	Unweighted Rank	Weighted Score	Weighted Rank
IC - 1	784	1	3417	2
IC - 2	763	2	3445	1
IC - 3	680	7	2937	8
IC - 4	729	3	3219	4
IC - 5	727	4	3321	3
IC - 6	688	6	3037	6
IC - 7	617	10	2705	9
IC - 8	679	8	2948	7
IC - 9	636	9	2659	10
IC - 10	710	5	3047	5

facility location perspective and a transportation (pedestrian, bicycle path, vehicular circulation, parking and transit) perspective. Also included is an assessment of compatibility with circulation problems between classes.

2. Compatibility with Current Plans by Others - Assessment of each site's potential compliance with the City of East Lansing Comprehensive Plan, CATA service plans, the highway, transit, pedestrian and bicycle elements of the City, University and State transportation plans and the service/routing plans of Amtrack, Greyhound, Indian Trails and any others currently providing service or intending to provide service to the campus.
3. Size/Configuration - An assessment of the proposed site to ensure that it was large enough to allow for all of the functions proposed within the MSU/CATA Transfer Center and the degree to which the general shape, configuration and circulation plan associated with the site would limit or otherwise affect the proposed development.
4. Location - An assessment of the centrality of the site and its visibility to student activities.
5. Accessibility - An appraisal of the relative ease by which the various possible modes of travel (MSU, CATA, pedestrian and bicycle) could travel to and from the site. Of particular note is the added or diminished operating mileage or hours imposed by each site on the current MSU and CATA routes. Also of particular note is the ease of travel/congestion/delays to CATA through the campus from Grand River Avenue.
6. Existing and Adjacent Site Building - An assessment of existing buildings to determine their compatibility with the proposed Transfer Center. This criterion should also include the impact of required access (roadway, etc.) improvements required for the best operation of the Center and the impact of those improvements on current physical facilities. An additional factor considered was the impact of increased vehicular traffic (buses) and pedestrian activity on the surrounding environs (i.e. visual, noise, congestion, safety, etc.). This factor should also take into account the planned improvements or new facilities identified in the MSU Master Plan.
7. Impact on Natural Systems - An assessment of the impact of the facility on natural features on or adjacent to the site. Included are wetlands/streams, flora, fauna, green space/parks, etc.
8. Construction Potential - An assessment of the relative ease or difficulty for construction of a Transfer Center and associated site improvements at each site. This

factor considered such items as the potential need for fill, elevation changes, demolition, utility requirements, relocation of current or planned major facilities, etc.

The same two-phase evaluation process was employed for the CATA/MSU transfer facility as described previously in this chapter for the alternative Intercity Terminal Facility sites. Each potential CATA/MSU transfer center site was first compared to the others within each of the individual criteria described above on a scale of 1 to 3, with a value of 1 representing "Poor" or "Worse than Average" satisfaction of the criteria, and a value of 2 representing "Moderate" or "Good" or "Better than Average" satisfaction of the criteria.

This information was initially presented in the form of an "unweighted" evaluation matrix. This provided a means by which to display how the performance of each site was rated relative to the evaluation criteria and how each site compared to the others when rated overall. The Technical Advisory Committee membership then assigned "weights" to each of the various criteria. Once the individual committee members had weighted the various criteria, an average composite weighting value for each evaluation factor was determined and applied to the unweighted, completed site evaluation matrix to determine its effect on the ranking of the alternative sites.

The lower portion of Table 4-5 on the following page presents the "Total Score" of each alternative site relative to its performance against the specified evaluation criteria. This "Score" is an unweighted total of the values between 1 (worst) and 3 (best) assigned to the performance of each alternative site relative to each of the respective evaluation factors by each participant. The "unweighted scores" received by each of the five(5) candidate sites (based upon the maximum number of points received) are as shown below:

<u>Rank</u>	<u>Site No.</u>	<u>Score</u>
1	4 - East side of Farm Lane, between EB/WB Shaw Lane	311
2	1 - Northeast corner of Farm Lane and WB Shaw Lane	301
3	5 - Existing CATA Albert Street transfer center	196
4	3 - Southern end of Red Cedar Road	186
5	2 - Southeast corner of Farm Lane and RR tracks	143

The average score for each site was 227.4 points, with the highest and lowest scores being, respectively, 36.8 percent above and 37.1 percent below this average value.

As would be expected, those sites located near the center of the MSU campus were rated by far the highest. Similarly, those sites located the furthest away from the center of campus

Table 4-5

**TE EVALUATION CRITERIA MATRIX
SU/CATA TRANSFER CENTER**

Water Laneing Transit Coordination Study

PARTICIPANT AVERAGES MULTIPLIED BY PUBLIC AGENCY AVERAGES

TE EVALUATION CRITERIA	PARTICIPANTS' AVERAGES					PUBLIC AGENCIES' AVERAGES	OVERALL				
	1 AVG.	2 AVG.	3 AVG.	4 AVG.	5 AVG.		1 AVG.	2 AVG.	3 AVG.	4 AVG.	5 AVG.
Compatibility with Current ASU Plans	2.75	0.50	1.13	2.75	0.75	11.83	31.97	5.81	13.08	31.97	8.72
Compatibility with Current Plans by Others	2.50	1.00	1.13	2.50	1.50	6.50	16.25	6.50	7.31	16.25	9.75
Cost/Configuration	2.25	1.75	1.83	2.25	0.75	10.00	22.50	17.50	16.25	22.50	7.50
Construction	2.88	0.88	0.88	2.88	0.88	10.00	28.75	8.75	8.75	28.75	8.75
Accessibility											
ASU/CATA Bus	2.88	1.00	1.13	2.88	1.83	14.83	42.05	14.83	16.45	42.05	23.77
Private Vehicular Traffic	2.50	1.38	1.13	2.50	1.83	4.13	10.31	5.67	4.84	10.31	6.70
Pedestrian/Bicycles	2.88	1.00	1.00	2.88	2.00	8.88	25.52	8.88	8.88	25.52	17.75
Emergency Vehicles	2.83	1.38	1.13	2.83	1.88	4.38	11.48	6.02	4.92	11.48	8.20
Siteing and Adjacent Site Environs											
Compatibility with Terminal	2.50	1.25	2.00	2.25	1.75	3.25	8.13	4.08	6.50	7.31	5.89
Potential for Additional Support Facility Development	2.38	1.38	1.75	2.50	1.00	2.88	6.83	3.95	5.03	7.19	2.88
Potential for Impacts on Surrounding Environs	2.25	0.75	1.83	2.38	1.13	6.00	13.50	4.50	9.75	14.25	6.75
Impact on Natural Systems											
Wetlands/Stream Valleys	1.75	1.13	1.83	2.00	2.25	2.00	3.50	2.25	3.25	4.00	4.50
Impact on Flora	1.75	0.75	1.83	2.00	2.25	2.00	3.50	1.50	3.25	4.00	4.50
Impact on Fauna	1.75	1.13	1.83	2.00	2.25	1.83	2.84	1.83	2.84	3.25	3.88
Greenspace/Parkland	1.75	0.75	1.83	2.00	2.25	2.75	4.81	2.08	4.47	5.50	6.19
Construction Potential	2.25	1.88	2.25	2.50	0.83	9.38	21.09	17.58	21.09	23.44	5.86
SUMMARY SITE RATING	37.83	17.88	23.25	38.88	24.50	100.00	204.81	99.17	115.88	209.55	112.89
TOTAL SCORE	301	143	186	311	196		1639	793	927	1676	902

activity were rated the lowest.

Table 4-6 illustrates a comparable summary for the allocation of weighting points as assigned by the various evaluators. The column labelled "Average Weighting" represents the mathematical average of the various individual evaluation factor weightings.

Those evaluation factors which received the five (5) highest ratings were as follows:

<u>Ranking</u>	<u>Evaluation Factor</u>	<u>Points</u>
1	Accessibility - MSU/CATA Bus	14.63
2	Compatibility with Current MSU Plans	11.63
3	Size/Configuration	10.00
4	Location	10.00
5	Accessibility - Pedestrian/Bicycle	8.88

The average number of weighting points assigned to any evaluation factor was 6.25, with the highest number of points being assigned to the factor of **Accessibility - MSU/CATA Bus** (14.63 points) and the lowest number of points being assigned to the factor of **Impact on Natural Systems - Fauna** (1.63 points).

The application of the criteria weighting factors to the unweighted site scores resulted in the weighted site scores shown on Table 4-7. As shown on this table, Transfer Center Sites CM-4 and CM-1 ranked first and second, respectively, under both the unweighted and weighted scoring systems. Both of these sites were judged by the evaluators to be clearly superior to any of the other alternative locations. For example, the next closest rated site (CM - 3) had a weighted score of 927 points, or only about 57 percent of the total weighted score assigned to Site CM - 1.

The closeness of the weighted and unweighted scores assigned to Sites CM - 1 and CM - 4 indicate that either of these two alternatives would appear to be acceptable as the ultimate location for the CATA/MSU on-campus transfer center. Thus, conceptual site development plans were created for both sites.

Table 4-6
SITE EVALUATION CRITERIA WEIGHTING FACTORS
CATA/MSU TRANSFER CENTER

<u>Site Evaluation Criteria</u>	<u>Weighting Factors</u>
Compatibility with Current MSU Plans	11.63
Compatibility with Current Plans by Others	6.50
Size / Configuration	10.00
Location	10.00
Accessibility	
MSU/CATA Bus	14.63
Private Vehicular Traffic	4.13
Pedestrians/Bicycles	8.88
Emergency Vehicles	4.38
Existing and Adjacent Site Environs	
Compatibility with Terminal	3.25
Potential for Additional Support	
Facility Development	2.88
Potential for Impacts on	
Surrounding Environs	6.00
Impact on Natural Systems	
Wetlands/Stream Valleys	2.00
Impact on Flora	2.00
Impact on Fauna	1.63
Greenspace/Parkland	2.75
Construction Potential	9.38
TOTAL WEIGHTING POINTS	100.00

Table 4-7

SUMMARY OF CATA/MSU TRANSFER CENTER SITE EVALUATION

Alternative Site	Unweighted Score	Unweighted Rank	Weighted Score	Weighted Rank
CM - 1	301	2	1638	2
CM - 2	143	5	793	5
CM - 3	186	4	927	3
CM - 4	311	1	1676	1
CM - 5	196	3	902	4

Chapter 5 - ILLUSTRATIVE FACILITY SITE PLANS

Introduction:

As discussed in the previous chapter, the extremely close ranking of several of the initially defined alternative intercity terminal and CATA/MSU transit center sites resulted in the preparation of several detailed site plans and building layout concept plans. The various final site plans developed for the highest rated intercity terminal and CATA/MSU transfer center sites are briefly described in the following sections of this chapter.

Proposed CATA/MSU On-Campus Transit Transfer Center:

Table 5-1 on the following page illustrates the building and site development program for the proposed CATA/MSU on-campus transit transfer facility which formed the basis for the creation of the various alternative illustrative site plans. This development program describes a building of approximately 5,500 square feet in size, of which approximately one-half (2,450 square feet) would constitute the "public areas", including an enclosed lobby and waiting area, public restrooms, storage lockers, vending area, a newsstand/gift shop and a US Postal Service self service center. The building would also include information and ticket sales areas for both the CATA and MSU bus systems, driver break areas for CATA and MSU operations and a building maintenance area.

The external component of the development program includes five CATA and five MSU bus loading areas, a taxi stand and pick-up/drop-off area, and space for pedestrian and bicycle circulation and bicycle storage.

As was the case with the intercity terminal, the very close ranking of alternative sites CM-1 (the northwest quadrant of the westbound Shaw Lane / Farm Lane intersection) and CM-4 (the parking area just west of the university planetarium between eastbound and westbound Shaw Lane) resulted in conceptual layout plans being prepared for both locations. Figures 5-1 through 5-4 on the following pages illustrate the two initial design concepts developed at each of these two locations.

Following review by the members of the Technical Advisory Committee, it was decided that the traffic circulation and transit operational issues associated with the site in front of the planetarium were such that this location (Site CM-4, as shown on Figures 5-3 and 5-4) was not suitable for further examination. Thus, the ultimately recommended design concept was

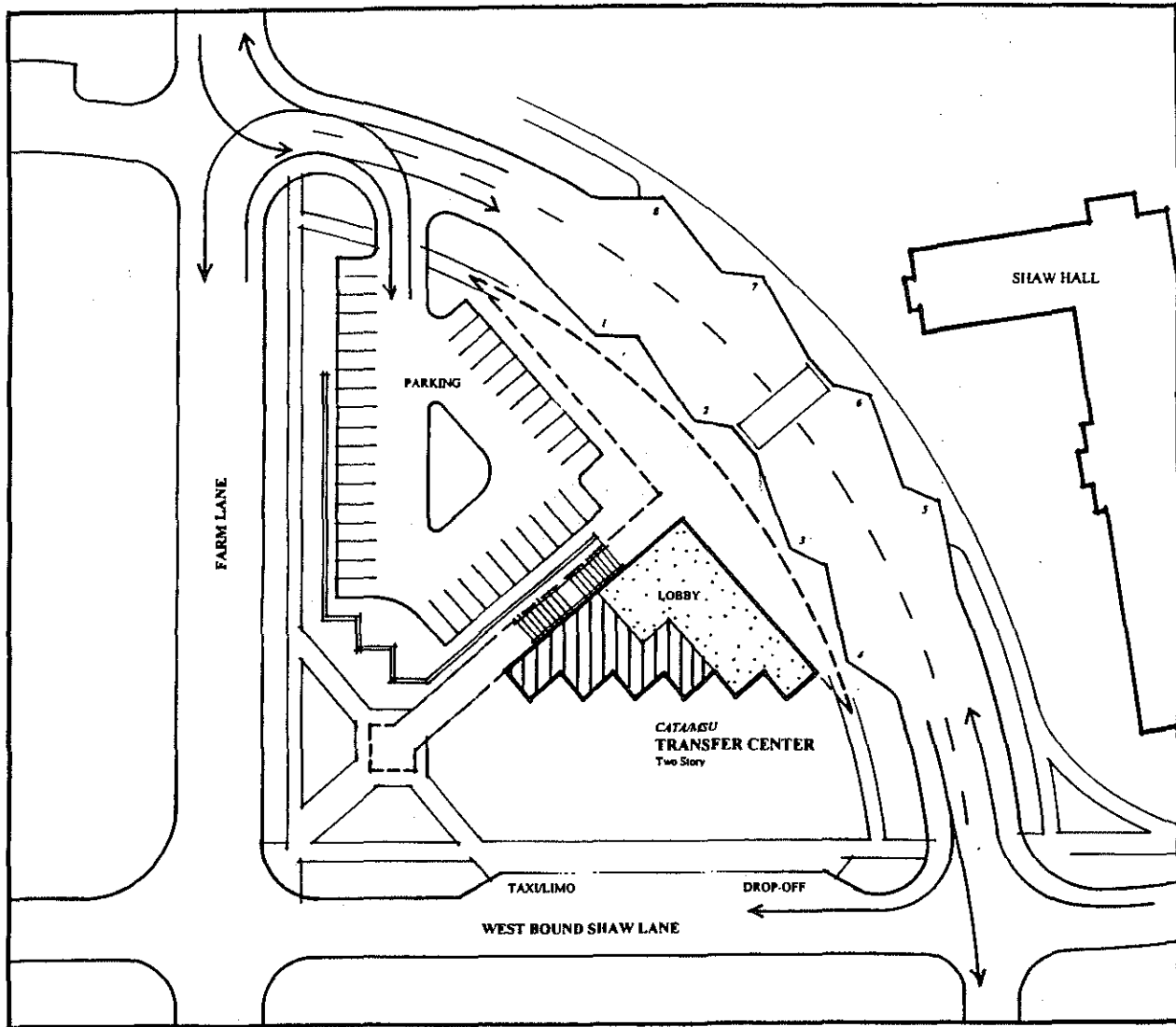
Table 5-1
CATA/MSU TRANSIT TRANSFER CENTER
Preliminary Design Program, January 1994

BUILDING PROGRAM

	<u>Net Area (Sq.Ft.)</u>	<u>Net Sub-Totals</u>	<u>Gross Totals</u>
A Public Areas		2,450	
1 Enclosed Lobby and Waiting Area	1,200		
2 Public Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newsstand, gift shop, etc.)	500		
6 US Postal Service self service center	150		
B CATA Sales and Distribution Area		500	
1 Counter and Work Area	250		
2 Office	250		
C MSU Sales and Distribution Area		500	
1 Counter and Work Area	250		
2 Office	250		
D Driver Break Areas		400	
1 MSU	200		
2 CATA	200		
E Maintenance Area		250	
1 Janitorial	100		
2 Grounds	150		
F Circulation / Mechanical (33%)		1,355	
TOTAL GROSS BUILDING AREA			5,455

SITE PROGRAM

A CATA Bus Boarding Bays, 5 @ 2,000 sq.ft. ea	10,000		
B MSU Bus Boarding Bays, 3 @ 2,000 sq.ft. eac	6,000		
C Taxi/Shuttle Service Area	2,500		
Subtotal		18,500	
D Site Circulation (20%)	3,700		
E Landscaping and Setbacks (20%)	3,700		
F Building Area	5,455		
TOTAL SITE AREA, Square Feet			31,355
TOTAL SITE AREA, Acres			0.72



Greater Lansing Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
CATA/MSU TRANSFER CENTER

Figure 5-1

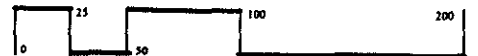
SITE CM - 1
CONCEPT A

GOROVE - SLADE ASSOCIATES, INC.
 Washington, D.C.

QUINN EVANS/ARCHITECTS
 Ann Arbor, Michigan



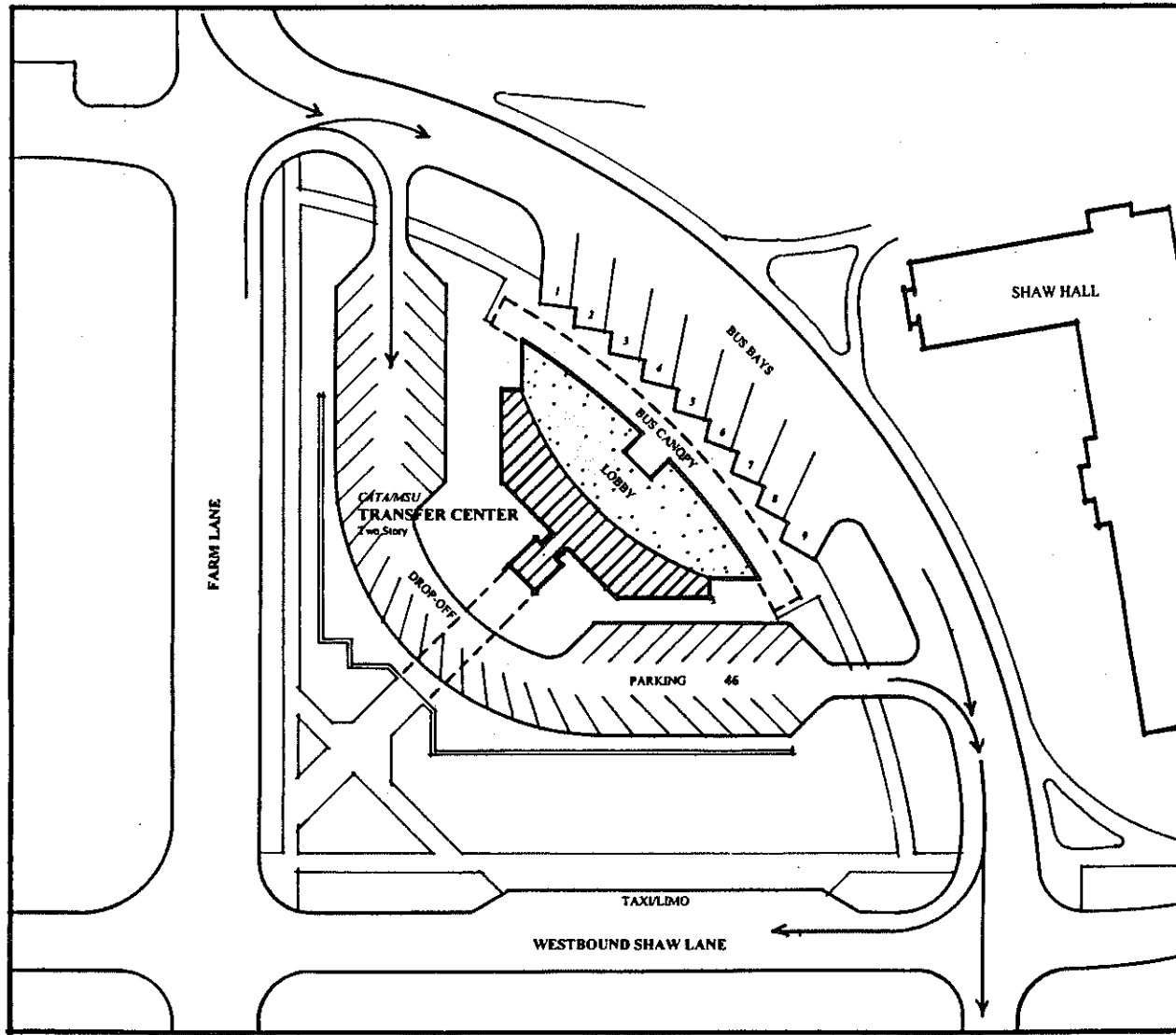
40 SCALE



CATA/MSU TRANSFER CENTER

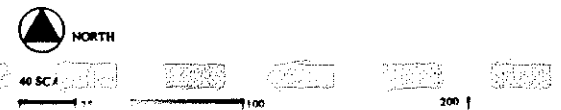
Figure 5-2

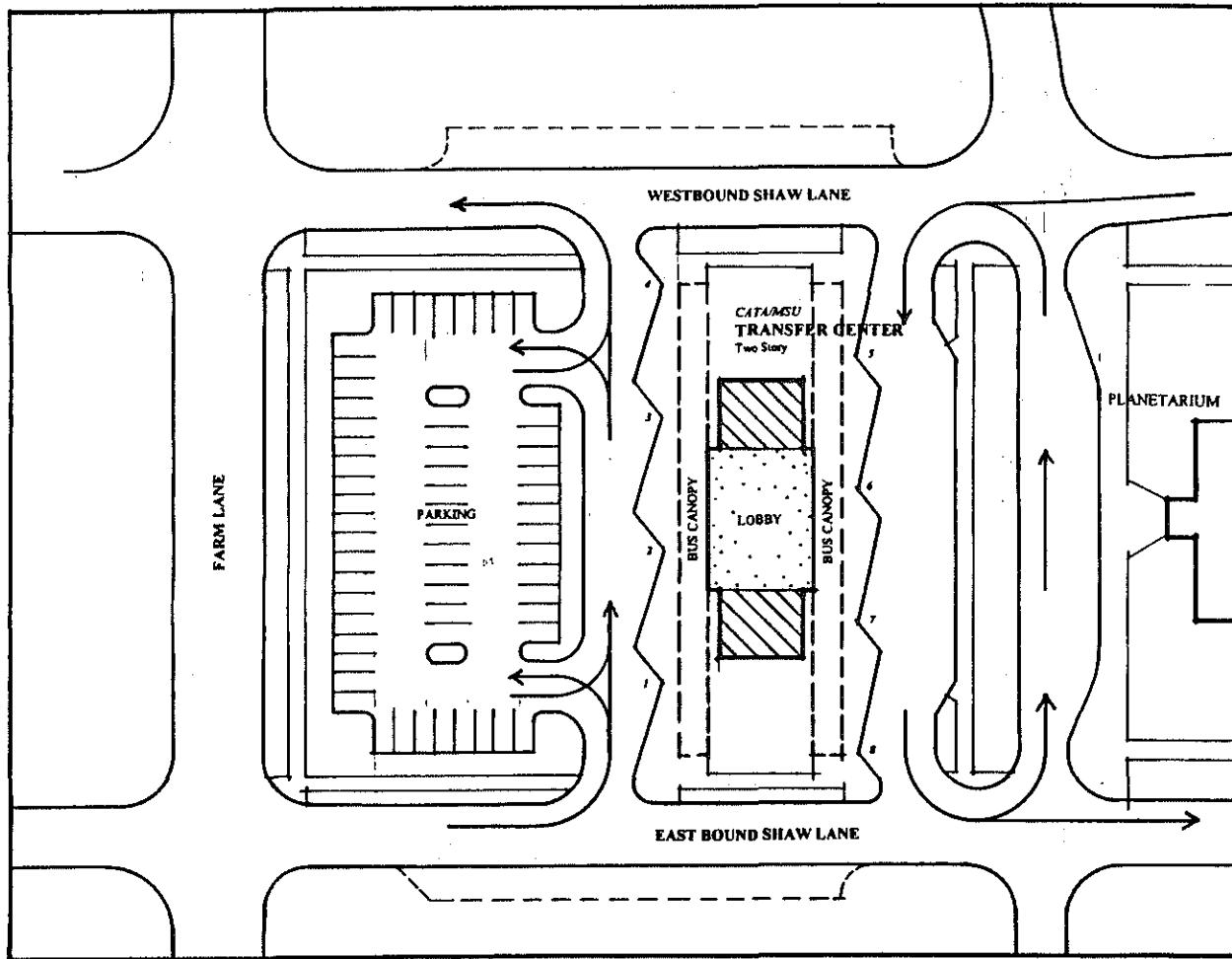
SITE CM - 1
CONCEPT B



GOROVE - SLADE ASSOCIATES, INC.
Washington, D.C.

QUINN EVANS/ARCHITECTS
Ann Arbor, Michigan





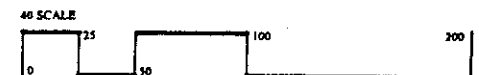
Greater Lansing Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
CATA/MSU TRANSFER CENTER

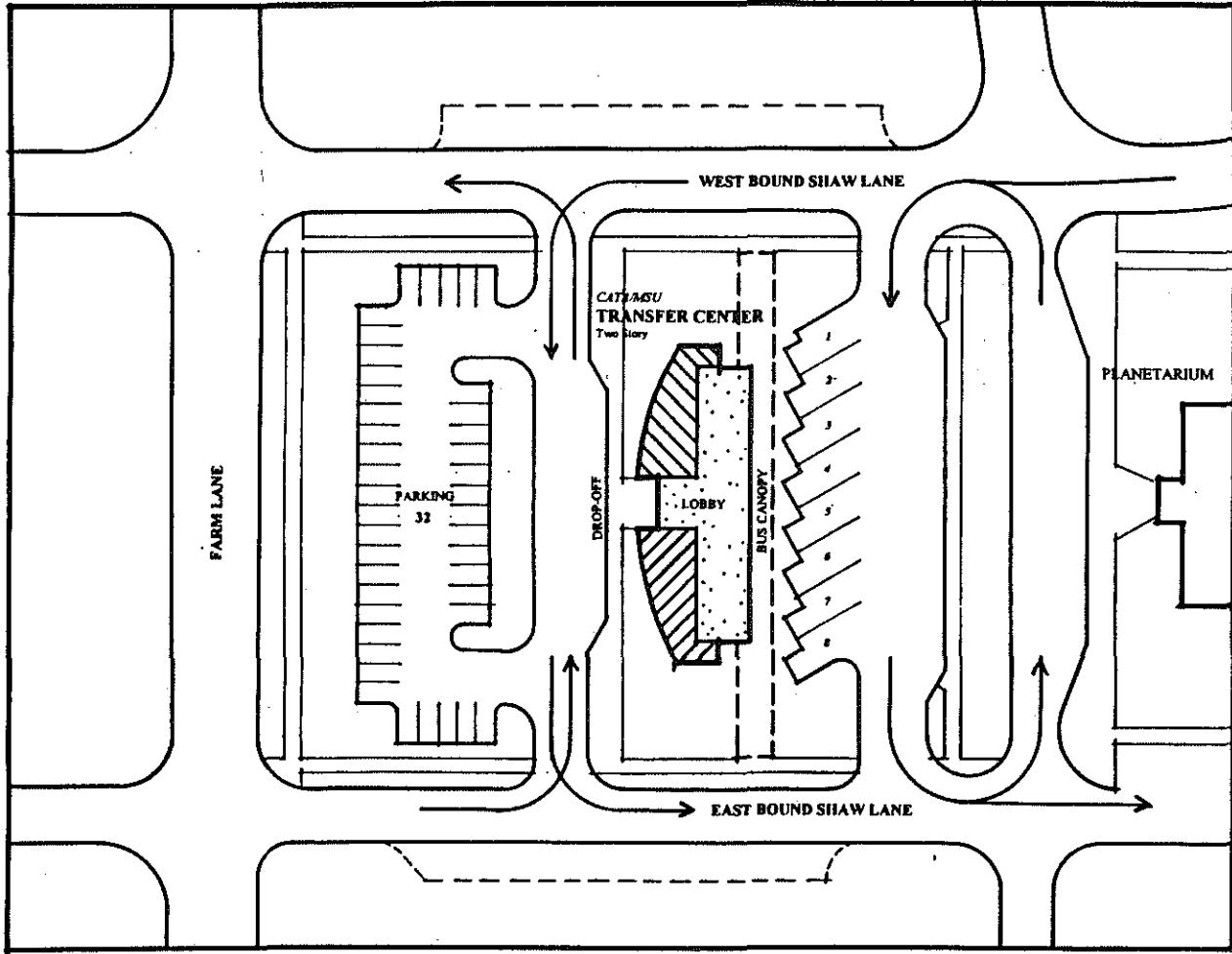
Figure 5-3

SITE CM - 4
CONCEPT A

GOROVE - SLADE ASSOCIATES, INC.
 Washington, D.C.

QUINN EVANS/ARCHITECTS
 Ann Arbor, Michigan





Greater Lansing Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
CATA/MSU TRANSFER CENTER

Figure 5-4

SITE CM - 4
CONCEPT B

GOROVE - SLADE ASSOCIATES, INC.
 Washington, D C

QUINN EVANS/ARCHITECTS
 Ann Arbor, Michigan



40 SCALE



prepared only for site CM-1. In addition, it was decided that this site should be used only for transit operations, with all of the existing on-site parking spaces to be relocated to other parts of the central campus.

The ultimately defined plan is illustrated on Figures 5-5 and 5-6 labelled "Site CM-1 - Final Site Development Concept." As shown on Figure 5-5 (plan view) and Figure 5-6 (cross-section elevation view), the proposed transit transfer center would be a two story structure, with the public lobby and passenger waiting areas located on the lower street level across from Shaw Hall and the other administrative and building maintenance functions located on the upper level. Given the grade differential between the intersection of Farm Lane and Westbound Shaw Lane and the street in front of Shaw Hall, this split level arrangement appears to take maximum advantage of the site and could result in the creation of a very attractive yet functional structure.

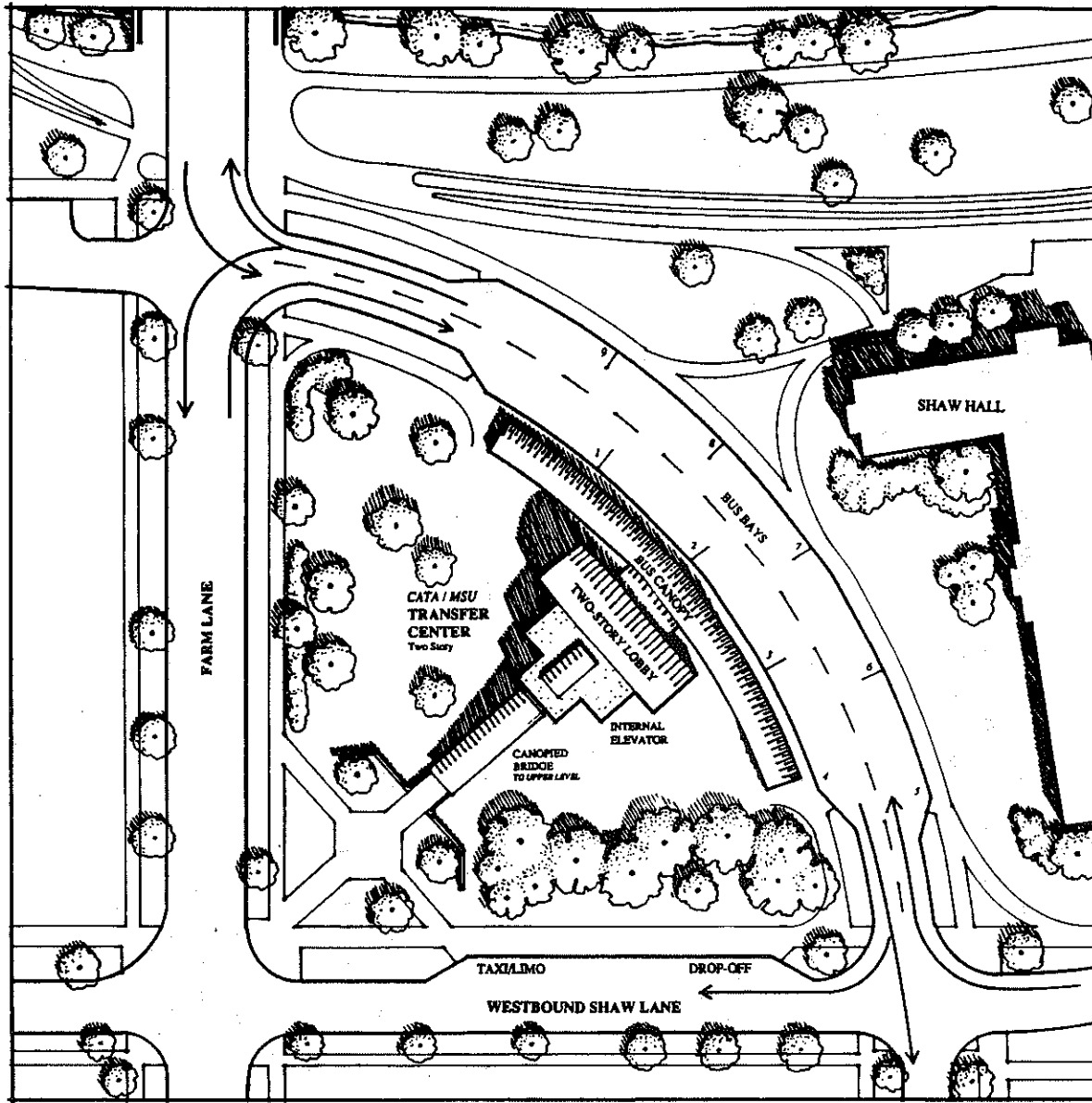
In contrast to the existing surface parking lot which occupies the majority of the site at the present time, the area around the building would be heavily landscaped to help create a focal point in this area of the campus.

The CATA and MSU bus operations would use both sides of the street in front of Shaw Hall, providing easy access to both systems for both boarding and transferring riders. Since this street is currently restricted to MSU bus operations, there would be no change in current traffic circulation patterns in this portion of the central campus. The existing bus stop area along westbound Shaw Lane would be converted into a taxi/shuttle and pick-up/drop-off area.

Intercity Terminal Facilities:

Table 5-2 on the following page illustrates the building and site development program for the intercity terminal facility which formed the basis for the creation of the various alternative illustrative site plans. It should be particularly noted that a number of as yet unresolved external issues will effect the final design of the facility which has been recommended for construction at this location.

These other factors include: the ultimate configuration of the Trowbridge Road/Harrison Road intersection associated with the planned easterly extension of Trowbridge Road into the Michigan State University campus, the construction of the proposed Michigan State University visitors center along Trowbridge Road east of Harrison Road, the ultimate disposition of the MSU operations located south of the Grand Trunk Railroad tracks west of Harrison Road, and the possibility of some form of grade separation between Harrison Road and the Grand Trunk



Greater Lansing Public Transportation Coordination Study
PRELIMINARY SITE DEVELOPMENT CONCEPTS

CATA/MSU TRANSFER CENTER

SITE CM - 1 FIGURE 5

FINAL
**SITE DEVELOPMENT
 CONCEPT**

CATA/MSU TRANSFER CENTER

Design Program: 31 January 1994

BUILDING PROGRAM

	NET AREA (sq. ft.)	NET SQUARE METERS
A Public Area		1,400
1 Reduced Lobby and Waiting Area	1,200	
2 Public Restrooms	400	
3 Lockers	50	
4 Vending Area	150	
5 Retail (newsstand, gift shop, etc.)	500	
6 US Postal Service Self Service Center	150	
B CATA Sales and Distribution Area		300
1 Counter and Wait Area	250	
2 Office	250	
C MSU Sales and Distribution Area		300
1 Counter and Wait Area	250	
2 Office	250	
D Driver Break Area		400
1 MRE	300	
2 CATA	200	
F Restroom Area		200
1 Restroom	100	
2 Gender	100	
G Circulation/Workshop (30%)		1,345
TOTAL GROSS BUILDING AREA		5,445

SITE PROGRAM

A CATA Bus Boarding Bays, 5 Bays (2000sf. each)	10,000
B MSU Bus Boarding Bays, 1 Bay (2000sf. each)	2,000
C Transit/Bus Service Area	2,500
D Bus-Tandem	15,000
F Site Circulation, 30%	3,700
G Landscape and Sitework, 30%	3,700
H Building Area	5,445
TOTAL SITE AREA, Square Feet	71,345
TOTAL SITE AREA, Acres	6.73

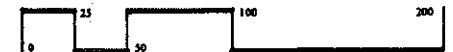
10 February 1994

GOROVE - SLADE ASSOCIATES, INC.
 Washington, D.C.

QUINN EVANS/ARCHITECTS
 Ann Arbor, Michigan



40 SCALE



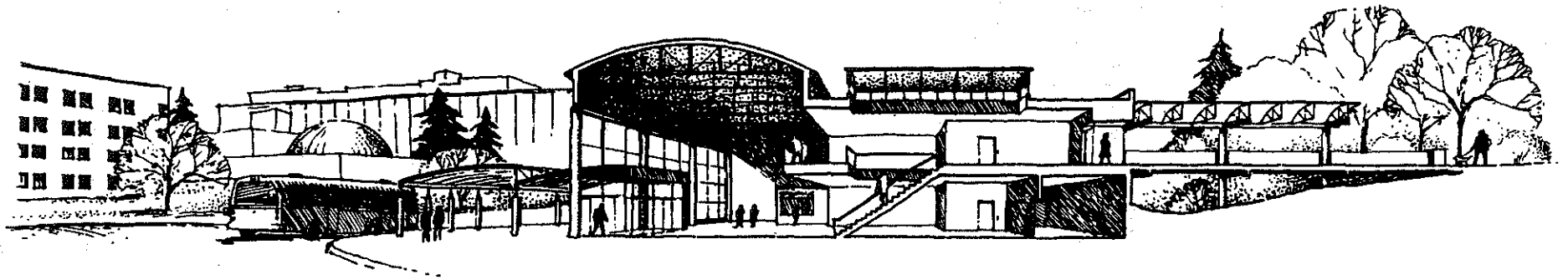


FIGURE 6

Greater Lansing Public Transportation Coordination Study

CATA/MSU TRANSFER CENTER

**BUILDING DESIGN
CONCEPT**

Sectional view looking Southeast

10 February 1994

GOROVE - SLADE ASSOCIATES, INC.
Washington, D.C.

QUINN - EVANS / ARCHITECTS
Ann Arbor, Michigan

Table 5-2
INTERMODAL TRANSFER CENTER

Design Program, 6 December 1993

BUILDING PROGRAM

From "East Lansing - Intermodal Passenger Terminal Site Analysis", June 1990.

	NET AREA (Sq. Ft.)	NET SUB-TOTALS	GROSS TOTALS
A Public Areas		2,750	
1 Lobby and Seating (75 seats)	1,400		
2 Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newstand, gift shop, etc.)	250		
6 Food Service Tenant Area	500		
B Bus Service Area		1,000	
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
C Rail Service area		1,000	
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
D Maintenance Area		250	
1 Janitorial	100		
2 Grounds	150		
E Circulation/Mechanical (33%)		1,500	
TOTAL GROSS BUILDING AREA			6,500

SITE PROGRAM

A Bus Boarding Bays, 5 Buses (2000sf. each)	10,000		
Greyhound - 2 Bays			
Trailways - 2 Bays			
Spare - 1 Bay			
B Boarding Platform for Rail Service	4,000		
C Short Term Parking, 30-35 Spaces (500sf. each)	17,500		
D Long Term Parking Spaces, 110-125 Spaces (500sf. ea.)	62,500		
E Employee Parking, 10-15 Spaces (500sf. each)	7,500		
F Taxi/Shuttle Service Area	2,500		
Sub-Total		104,000	
G Site Circulation, 20%	20,800		
H Landscape and Setbacks, 20%	20,800		
I Building Area	6,000		
TOTAL SITE AREA, Square Feet			151,600
TOTAL SITE AREA, Acres			3.48

ALTERNATE #1

Long term parking is by far the largest site component at 1.15 acres.

The minimum site area could be reduced to approximately 1.75 acres if convenient off-site parking is provided.

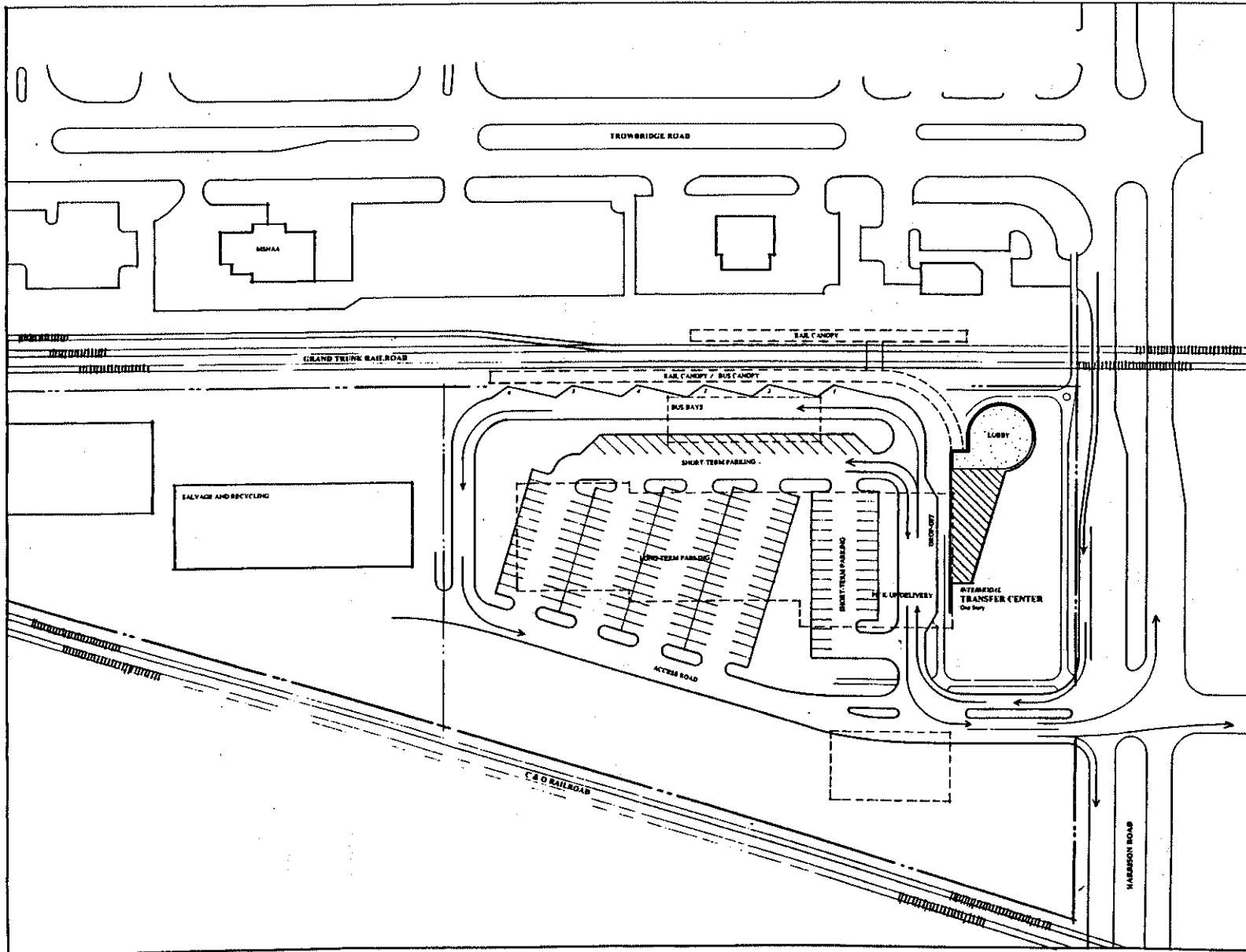
Railroad tracks. Dependent upon the final resolution of these issues, the intercity terminal concept plans described on the following pages may have to be substantially revised.

Moreover, given the extremely close ranking of intercity terminal sites IM-1 and IM-2 (and the combined, compromise site IM-11), conceptual site plans were prepared for all of these options; that is, all activities located on the south side of the tracks (IM-1), all activities located on the north side of the tracks (IM-2), and the terminal building proper and intercity bus and rail passenger platforms on the north side of the tracks and the majority of the required short-term and long-term parking facilities located on the south side of the tracks (IM-11). Clearly, each concept has its inherent strengths and weaknesses, and while the compromise site plan (IM-11) was felt to be the overall superior alternative in the view of the members of the Technical Advisory Committee, all three schemes are being presented to illustrate their relative potential opportunities and advantages.

It should also be noted that the development of an intercity bus and rail terminal at this general location would require the relocation of the existing siding track connection between the Grand Trunk and Chessie System rail lines. This connecting track currently deviates from the westbound Grand Trunk line track approximately 200 feet west of the Harrison Road grade crossing. In order to allow the intercity terminal project to proceed, the location of this switch point would have to shift to a point 600-700 feet west of Harrison Road, with a comparable extension to the north along the Chessie tracks to maintain the same overall length of siding track.

Description of Site IM-1: As shown on Figure 5-7, this design concept (identified as Site IM-1, Concept C) placed all of the intercity terminal functions to the west of Harrison Road on the south side of the Grand Trunk Railroad tracks. This would require the acquisition and demolition of essentially all of the Michigan State University property and activities now in operation within the triangle of land formed by the Grand Trunk Railroad, Harrison Road, and the Chessie System railroad tracks.

Access to this site would be provided at the existing MSU access point at the intersection of South Service Road and Harrison Road. The access point would potentially have to be signalized to ensure minimal delays by entering and exiting bus and other vehicular traffic. The primary axis of the terminal building proper would be located along Harrison Road with pick-up/drop-off and taxi operations located along the west side of the building. The six(6) intercity bus bays would be constructed perpendicular to the terminal building and parallel to the railroad passenger platforms. This design also provides for a completely open and easily surveyable public space which would increase the facility user's overall sense of security.



Circular Lettering Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
 INTERMODAL TRANSFER CENTER

Figure 5-7

SITE IM - I
 CONCEPT C

LEWIS - SHAIN ASSOCIATES, INC.
 Washington, DC
 GRUHN EVANS ARCHITECTS
 Ann Arbor, Michigan



One major limitation to this site development concept expressed by the intercity bus operators (both Greyhound and Indian Trails Bus Lines) is the location of the only bus access point and all of the bus loading bays on the south side of the Grand Trunk Railroad tracks. The concern expressed was the potential for extended blockage of the tracks by rail freight operations with subsequent excessive delays for bus operations and the fact that the only site access point is relatively far removed from the Trowbridge Road access route to the regional freeway system.

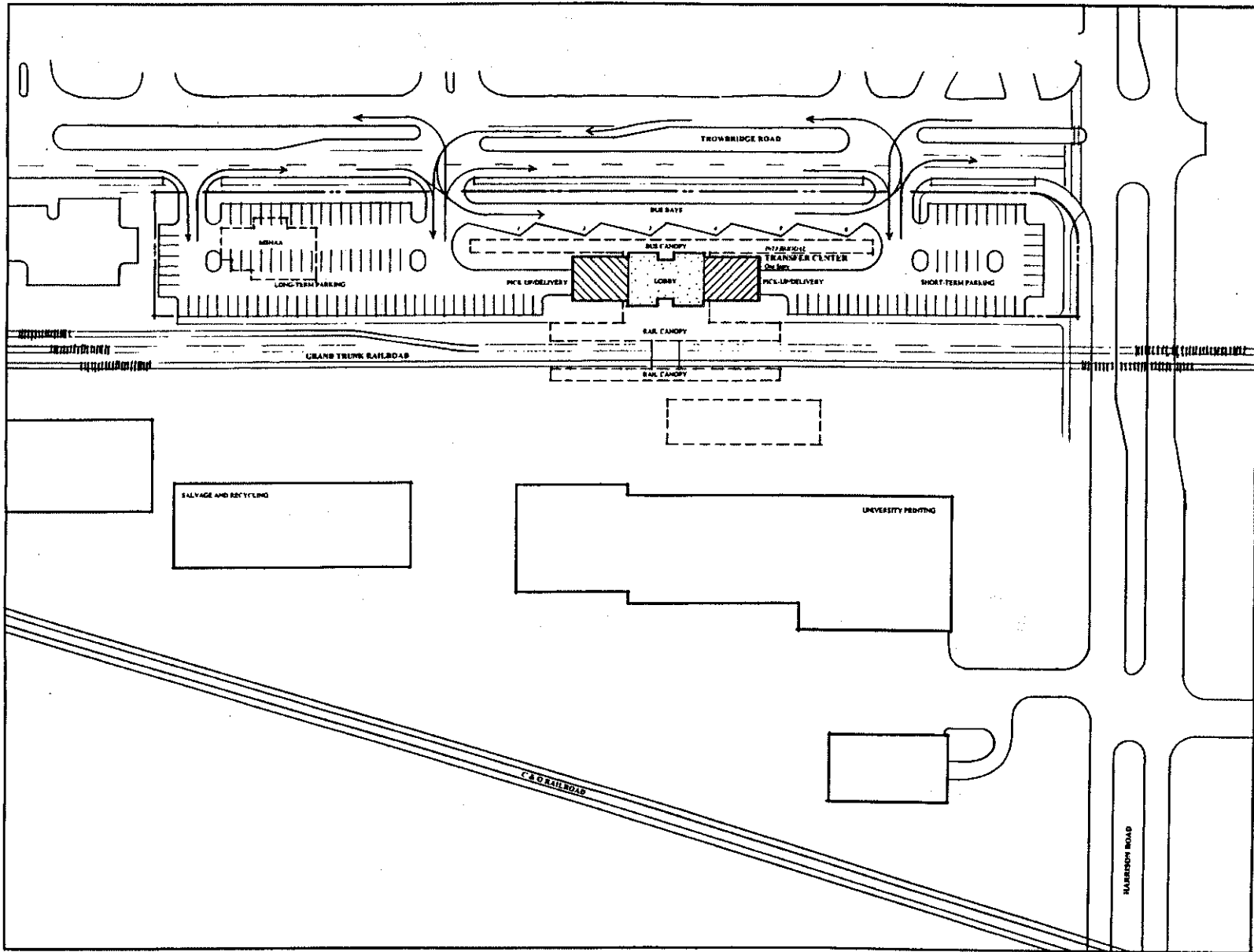
Description of Site IM-2: As illustrated on Figure 5-8, this design concept (identified as Site IM-2, Concept B) placed all of the intercity terminal functions to the west of Harrison Road on the north side of the Grand Trunk Railroad tracks. This resulted in a very long and narrow site plan and would require the acquisition and demolition of all of the existing commercial activities west of Harrison Road between Trowbridge Road and the railroad tracks to a point west of the Michigan State High School Athletic Association building.

As illustrated on the conceptual site plan, the terminal building proper would be located at the mid point of the site, approximately 500 feet west of Harrison Road. The six(6) intercity bus bays would be located along the north side of the building, with the intercity rail platform and canopies along the south side of the building. Because of this arrangement, the short-term, pick-up/drop-off and long term parking areas would be split along either side of the terminal building proper, with the majority of the short term parking to the east and the long term parking to the west.

Entry to the site would be from the three locations along Trowbridge Road which currently provide the access points to the existing commercial businesses. The major site access point would be located across from the principal shopping center entrance on the north side of Trowbridge Road. One criticism of this concept plan was the potential for additional traffic congestion along this section of Trowbridge Road due to the volumes of entering and exiting traffic associated with the proposed intercity terminal.

Description of Consolidated Site IM-11 (IM-1 and IM-2). As noted earlier in this discussion, the final basic variation on the design of an intermodal intercity terminal at this location utilized areas on both the north and south sides of the Grand Trunk Railroad tracks. As illustrated on Figure 5-9 labelled "Site IM-1&2, Concept A", the intercity terminal building would be located just west of Harrison Road between Trowbridge Road and the railroad tracks. The intercity bus bays, intercity rail platform waiting areas, and short-term, pick-up/drop-off functions would also be located in this area proceeding to the west.

The long term parking requirements would be satisfied in the area south of the tracks currently occupied by the existing Amtrak station and its surface parking areas. As shown on Figure 5-

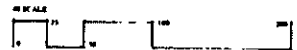


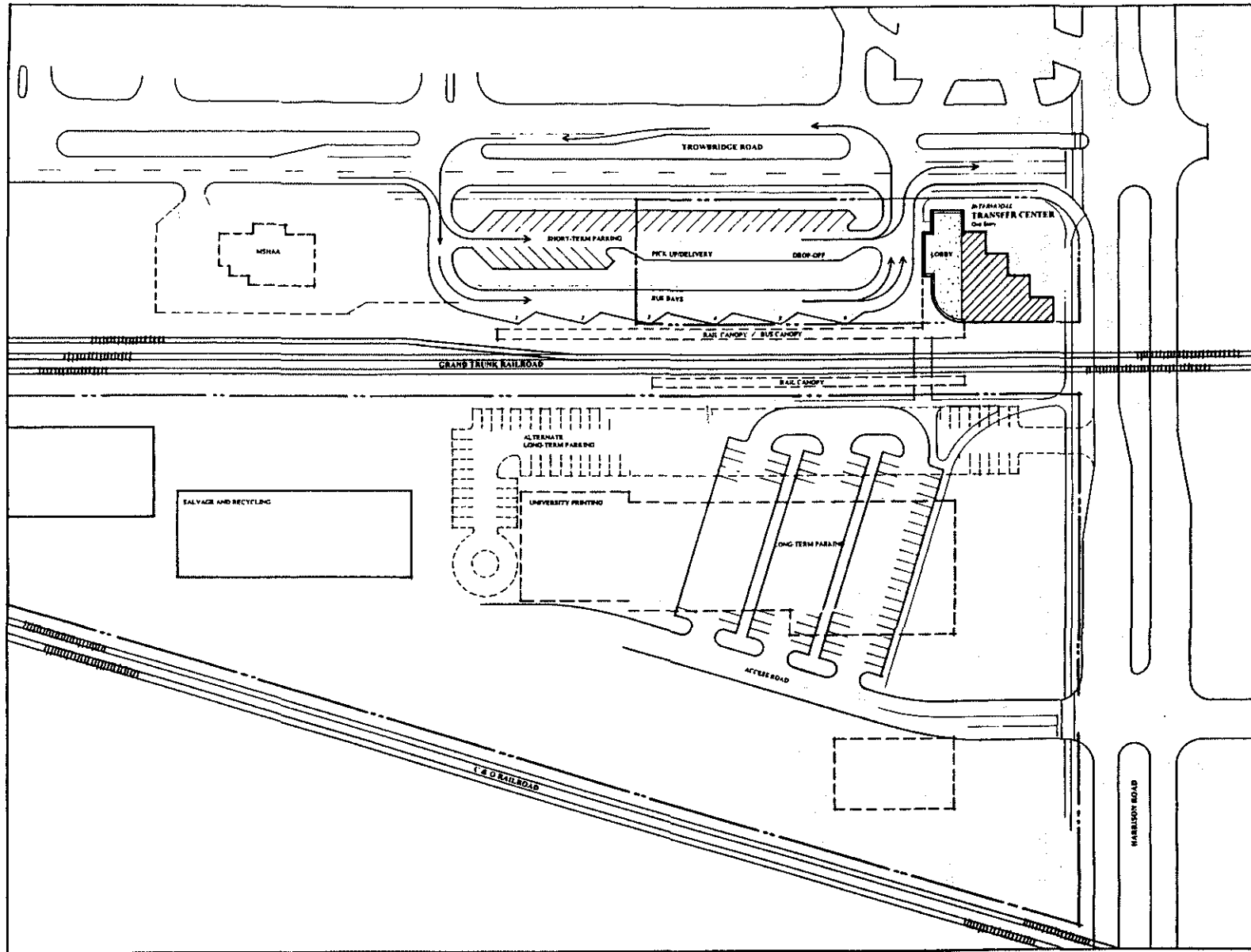
Greater Lansing Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
 INTERMODAL TRANSFER CENTER

Figure 5-8

SITE IM - 2
 CONCEPT B

GEORGE - SHAR ASSOCIATES, INC.
 Washington, D.C.
 QUINN EVANS ARCHITECTS
 Ann Arbor, Michigan



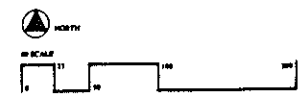


Greater Lansing Public Transportation Corridor Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
INTERMODAL TRANSFER CENTER

Figure 5-9

SITE IM - 1 & 2
 CONCEPT A

COBURN - SHAW ASSOCIATES, INC.
 Washington, D.C.
 QUINN EVANS ARCHITECTS
 Ann Arbor, Michigan



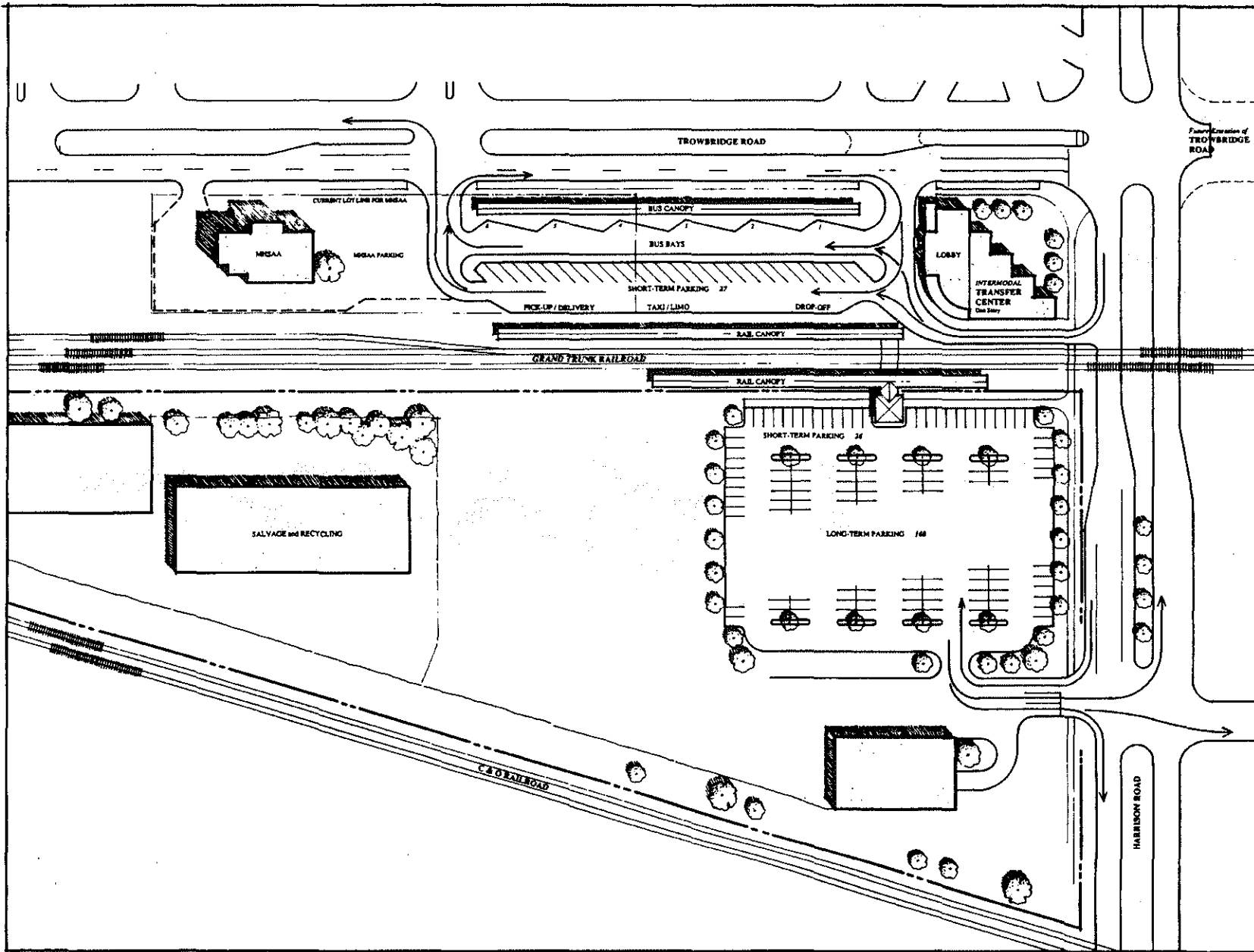
9, there are several different arrangements possible for the long term parking area, dependent upon the ultimate disposition of the Michigan State University facilities located in this area.

Similarly, there are a number of workable options to provide site access and circulation to the short term parking and bus bay areas on the north side of the tracks. For example, in contrast to the primary site exit point being located immediately to the west of the Trowbridge Road / Harrison Road intersection as shown on Figure 5-9, the graphic labelled "Final Site Development Concept" (Figure 5-10), reverses this on-site traffic flow so that the major terminal exit point is located across from the primary shopping center access point on the north side of Trowbridge Road. This action, combined with the suggested closure of the easternmost median break along Trowbridge Road and the provision of a possible bus only entry lane from southbound Harrison Road, would serve to simplify the traffic circulation patterns in this area.

As in the case of the previously described alternative site concepts, the use of areas on both sides of the tracks would require the acquisition and demolition of the existing commercial businesses located between Trowbridge Road and the railroad tracks and the potential acquisition and demolition of some of the Michigan State University buildings located south of the tracks.

Figure 5-11 presents a cross-section elevation view of the proposed intermodal terminal facility.

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Greater Lansing Public Transportation Coordination Study
 PRELIMINARY SITE DEVELOPMENT CONCEPTS
INTERMODAL TRANSFER CENTER

FIGURE 10

SITE DM - 1 & 2

**FINAL
 SITE DEVELOPMENT
 CONCEPT**

INTERMODAL TRANSFER CENTER

Project Program: 11/20/93

DATE: 11/20/93

BASELINE PROGRAM

Item	Area (sq ft)	Notes
A. Public Area	1,700	
1. Lobby and Waiting (11 seats)	1,000	
2. Ticketing	200	
3. Restrooms	100	
4. Waiting Area	100	
5. Baggage/Check-in (20 seats)	200	
6. Food Service (20 seats)	200	
7. Food Service (20 seats)	200	
B. Bus Service Area	1,000	
1. Canopy and Ticket Area	200	
2. Ticketing	200	
3. Waiting Area	200	
4. Ticketing	200	
5. Waiting Area	200	
6. Ticketing	200	
7. Waiting Area	200	
C. Rail Service Area	1,000	
1. Canopy and Ticket Area	200	
2. Ticketing	200	
3. Waiting Area	200	
4. Ticketing	200	
5. Waiting Area	200	
6. Ticketing	200	
7. Waiting Area	200	
TOTAL BASELINE PROGRAM AREA	4,700	

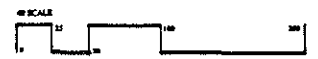
NET PROGRAM

A. One Building (2000 sq ft)	10,000
Construction (1.5 times)	15,000
Program (1.5 times)	15,000
Approx. 1.5 times	
B. Building (2000 sq ft)	10,000
C. Short Term Parking (37 spaces @ 200 sq ft)	7,400
D. Long Term Parking (148 spaces @ 200 sq ft)	29,600
E. Storage Parking (400 spaces @ 200 sq ft)	80,000
F. Total Parking Area	117,000
G. Site Area	127,000
H. Site Area (100%)	127,000
I. Site Area (100%)	127,000
TOTAL NET AREA (Approx. 100%)	127,000

ALTERNATE #1
 Long term parking is to be the larger an extension of 111 spaces
 The maximum lot area used is indicated approximately 1/4 acre of pavement area parking provided

10 February 1994

OROVIE - BLADE ASSOCIATES, INC.
 Washington, D.C.
 QUINN EVANS ARCHITECTS
 Ann Arbor, Michigan



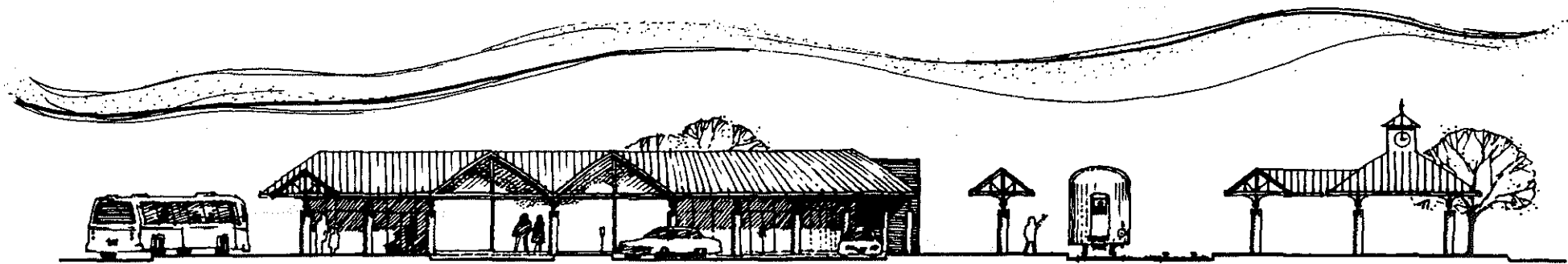


FIGURE 11

Greater Lansing Public Transportation Coordination Study
INTERMODAL TRANSFER CENTER
BUILDING DESIGN
CONCEPT
Elevation looking East

10 February 1994

GOROVE - SLADE ASSOCIATES, INC.
Washington, D.C.

QUINN - EVANS / ARCHITECTS
Ann Arbor, Michigan

CHAPTER 6 - SURVEY OF COMPARABLE SITUATIONS NATIONWIDE

An important element of this overall project was an examination of the transit facility improvement and service coordination activities which had been undertaken in other university communities similar in character to the East Lansing / Michigan State University situation. The purpose of this Chapter of the project final report is to summarize the results of this survey.

Selection of Candidate Communities:

The selection of the candidate university communities to be surveyed was a collaborative effort of the consultant team staff and the members of the Project's Technical Advisory Committee. An initial list of two dozen possible institutions throughout the United States was compiled by the consultant team. This listing was reviewed by the members of the Technical Advisory Committee and a final listing of 18 representative communities was selected. Table 6-1 illustrates the final group of selected universities. In addition, data describing current conditions at Michigan State University was obtained for comparative purposes.

These 19 candidate institutions (including Michigan State University) are located in a wide cross section of large and small urban areas, with enrollments ranging from 12,000 to 50,000 full time students, and with various degrees of integration between the university and general public transit systems.

Survey Methodology and Summary Results:

The next step in this process was the preparation and distribution of a survey form designed to obtain information on both the general characteristics of the institution and its surrounding community, and specific information on current campus transit services and the degree to which these services were being coordinated with other existing public transportation operations in the community. The development and execution of this survey instrument was undertaken by the firm of Chance Management Advisors, Inc. of Philadelphia, PA in the role of a subconsultant to Gorove/Slade Associates, Inc. The survey was distributed by facsimile copy, with follow-up telephone contacts with representatives of the individual universities undertaken as necessary. A copy of the complete survey form is contained in Appendix 6-1.

Table 6-1

Final List of Candidate University Communities:

- The Ohio State University
- The University of Michigan - Ann Arbor
- The University of Illinois - Champaign/Urbana
- The University of Indiana - Bloomington
- The University of Iowa - Iowa City
- The Pennsylvania State University
- The University of Wisconsin - Madison
- The University of Minnesota
- Kent State University
- The University of Kentucky
- The University of Virginia
- The Georgia Institute of Technology
- The University of Georgia - Athens
- The University of North Carolina - Chapel Hill
- North Carolina State University
- Texas A&M University - College Station
- Cornell University
- The University of Washington
- Michigan State University

The survey included seven sections and a total of 100 questions on the topics of general university information, the university transportation system, the university's relationship with the local public transit agency, the university and public transit systems' ridership characteristics, the existence and characteristics of any transit transfer facilities, incentives given for using transit, and general university transportation policies. It was expected that by asking such questions a greater understanding of how similar institutions and local public transit agencies coordinate and cooperate in fulfilling the transportation needs of their specific areas would be achieved.

Of the 19 universities, including Michigan State, which were initially contacted, a total of 16 responded to the survey. The respondents included the following:

- Cornell University,
- The Georgia Institute of Technology (Georgia Tech),
- North Carolina State University,
- The Pennsylvania State University,
- Texas A&M University,
- The University of Georgia - Athens,
- The University of Illinois - Champaign/Urbana,
- Indiana University - Bloomington,
- The University of Iowa,
- The University of Kentucky,
- The University of Michigan,
- The University of North Carolina at Chapel Hill,
- The University of Virginia,
- The University of Washington, and
- Michigan State University.

The Ohio State University only partially completed the survey form while Kent State University, the University of Minnesota, and the University of Wisconsin failed to return a completed survey form despite repeated efforts to have them do so. The following narrative summarizes the various responses received to each of the survey questions.

Basic information was gathered in Section I of the survey. Four questions were asked pertaining to the population characteristics of each university. Campus population, expressed in terms of full-time equivalent students was obtained. Five of the universities reported campus populations of between 30,000 and 40,000 students. Four universities had populations of between 40,000 and 50,000, and four more reported campus populations of greater than 50,000.

An average of 42% of all university students were reported to live on campus. The highest percentage of undergraduate students that live on campus was 90% at the University of Michigan. The University of Illinois has only 8% of its undergraduate students living on campus, although 80% were reported as living within a mile from campus. The percentage of graduate students that live on campus were reported as 90% at the University of Michigan and only 2% at the University of Illinois.

In comparison to these statistics, Michigan State University has 40,000 undergraduate and graduate students, and 6,000 faculty and staff members. Thirty-six percent of all students were reported as living on campus.

Section II of the survey sought to obtain a description of the existing university transportation system. Each participant was asked to describe the nature of their university's transportation system in terms of management, operations, and their relation with the local public transit system. Eleven universities manage their own transportation systems, while three public transit systems manage the campus transportation systems. Other responses included Cornell University which owns and manages a public transit system, (CU Transit, Inc.) serving both the campus and surrounding community. Eleven Universities have responsibility for operating the campus transportation system. Three universities pay the public transit company to operate their system, while three more pay another entity all together to operate the system.

The University of Washington operates its "Health Sciences Express" and pays another entity to operate the "Night Ride" program. The University of Kentucky operates their "CATS Shuttle" while paying LexTran, the City of Lexington's public transit company, to operate routes through the campus as well. A majority of the universities surveyed (14) have public transit routes that run to or through their campus. Twelve universities and public transit systems share transit stops, and four share transfer facilities. Eight universities have their own systems that circulate through and around the campus, while having public transit routes that run to the campus. There are also eight universities with special public transit routes designed to serve them. Other responses include the University of Virginia that accepts transfers between the public and university systems, and the University of North Carolina at Chapel Hill that operates its own point to point shuttle.

Michigan State University manages and operates its own on-campus transportation system. CATA and the University system share a few common on-street transit stops and CATA operates a single regular route that runs through the campus.

The average university transportation system has been in existence for 21 years, while Michigan State's has been in existence for 29 years. The University of Michigan transit system was reported to have been in operation in some form or another for 45 years. The

University of Illinois has only had a system for five years, and was thus the youngest system of all the universities interviewed.

The universities surveyed have had a relationship with the public transit agency in their area for an average of 11 years. MSU and CATA have had such a relationship for over 20 years. The longest reported university/public system relationship was that between the University of Kentucky and the City of Lexington, and was begun 25 years ago. A cooperative relationship of only two years exists between the University of Virginia and the City of Charlottesville.

Twelve universities use fixed route buses in their systems, while seven use demand response buses, and six use shuttle buses. Six of the universities have a vanpool program, while eight do not. Nine universities have carpool programs and four do not. MSU primarily uses fixed route buses and over the road suburban coaches in its operation and does not have a formalized van pool or carpool program at the present time.

Most university transportation systems begin operations between the hours of 6:00 AM and 7:00 AM, and generally finish between 12:00 Midnight and 1:00 AM. The earliest reported weekday start is at Cornell University at 4:00 AM. The latest reported weekday start is at Penn State University and Indiana University which both start at 7:30 AM. The latest reported start for weekend service is at the University of Iowa that begins at 11:30 AM. The latest finish for weekend service is at Penn State University that ends at 3:00 AM. The earliest weekday finish is at North Carolina State University at 11:00 PM. The latest weekday finish is 2:00 AM at Cornell University, the University of Michigan, and the University of Illinois. The University of Washington operates its "Health Sciences Express" from 6:00 AM to 6:00 PM, Monday through Friday, and its "Night Ride" from 6:00 AM to 12:30 AM Sunday through Thursday in the Fall and Winter academic quarters, and from 8:30 AM to 12:20 AM Sunday through Thursday in the Spring quarter.

By comparison, Michigan State University operates its system on weekdays from 7:00 AM to 2:30 AM and on weekends from 10:00 AM to 2:30 AM. All university system operating hours are subject to change at different times during the academic year, typically at semester or quarter breaks.

The "chain of command" of each of the universities' transportation systems are quite similar. All end with the President of the University, except for North Carolina State University which ends with the Chancellor, and for Indiana University which ends with the Board of Directors. Vice Presidents of Business and Finance are common elements of each chain. The majority of the universities have a chain of command structure above the position of Director of Transportation of three positions. Several have as many as five positions above

transportation. Michigan State University's organizational structure appears to be typical in this regard, with the Assistant Vice President of Physical Plant, the Vice President for Operations and Treasurer, and the President of the University above the Director of the Campus Transportation Department.

Ten universities incorporate parking and transportation operations in the same department, while only two universities have these operations separate. The average number of full-time employees that work in the universities' transportation departments are 26. There is an average of 58 part-time workers. The range is from a low of one(1) full-time worker at Georgia Tech, to a high of 57 full-time workers at the University of North Carolina at Chapel Hill (i.e., the Chapel Hill Transit System). The University of Iowa has 130 part-time workers, which is the highest number reported at the institutions surveyed. In comparison, the Michigan State University transportation department has 17 full-time and 41 part-time workers. The operations of the parking and transportation functions at Michigan State are not in the same department, with Parking being in the University's Public Safety Department.

Nine universities responded negatively when asked if there was a committee or work group (either university related or regional) that was responsible for assisting the campus in the use of alternative transportation modes. Of the five that answered positively, the main functions of the committee or work group were to advise on transportation issues, recommend policy, increase awareness of transportation, and assist in route design. MSU has no such formalized working group, although the University's Traffic and Parking Committee does provide advice on a number of these topical areas.

Funding for the university transportation systems comes primarily from the sale of permits or passes, and by being subsidized by parking permit fees or fines. Ten universities use each of those methods. Nine systems are funded through student fees, five are funded by general educational funds, and three use a combination of these funds. Other answers include:

- the University of North Carolina at Chapel Hill (Chapel Hill Transit) that uses State and Federal transportation funding,
- the University of Iowa that uses FTA Section 9 and State transit assistance funding, and
- Cornell University that uses State operating assistance.

A majority of these funding mechanisms cover both operating and capital costs. In only three universities are both operating and capital costs not covered by the funding mechanisms

Table 6-2

SECTION II. UNIVERSITY TRANSPORTATION

How is the University transportation system funded?

	General and educational funds	Permits or passes sold to all who want to ride	Student fees	Subsidized by parking permit fees or fines	Combination of sources	Other
University of Virginia		X	X	X		
University of Washington	X	X		X		
Indiana University		X			X	
University of North Carolina [1]	X	X	X	X		X
University of Michigan	X					
Texas A&M		X	X	X		
University of Iowa [2]			X	X		X
Georgia Tech			X			
University of Georgia			X			
North Carolina State		X	X	X		
Penn State	X	X	X	X		
Cornell University [3]	X	X		X		X
University of Kentucky				X	X	
University of Illinois		X	X	X		
Michigan State		X			X	

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[1] "Other" refers to state and federal transportation funding.

[2] "Other" refers to FTA-Section 9, and state transit assistance funding.

[3] "Other" refers to state operating assistance.

referred to above. Other funding mechanisms for these schools include covering capital costs by University Account funding at the University of Iowa, and the use of occasional funds from an Auxiliary Enterprises account for the acquisition of buses at the University of Indiana. Being self-supporting is a requirement of 11 University Systems, including Michigan State University which is funded by permits and pass sales revenues, as well through funds generated by charters to academic departments and other university groups. These funds are typically expected to cover both operating and capital costs. Five systems reported that they were not required to be self-supporting.

Special routes and charters for university activities such as sporting events and holidays are provided by 12 of the universities. An even split of universities do and do not provide routes to serve the adjacent to campus neighborhood areas where significant numbers of university-related people live. A majority of the schools that schedule neighborhood routes designed them to be compatible with peak class periods on campus.

An examination of the rates that various campus groups pay to ride the university transportation system buses is broken into rates per semester/quarter for faculty, staff, graduate students, and undergraduate students. These rates range from zero (\$0.00), i.e., free fares, for faculty and staff at Cornell University, and for graduates and undergraduates at the University of Kentucky, to \$60.00 per year for all student, faculty and staff categories at Penn State University. The University of Virginia charges graduate and undergraduate students \$60.00 a year if they also purchase a university parking permit, but only charges \$48.00 a year for those persons who purchase a bus pass without the purchase of a University Parking Permit.

North Carolina State University and the University of Michigan do not impose individual boarding charges for any riders. At North Carolina State University, fees are collected from all students in the Fall and Spring semesters, at a cost of \$16.00 per semester. Faculty and staff pay an additional \$9.00 for a parking permit. No fares are collected on the buses, but I.D.s are required. At the University of North Carolina at Chapel Hill, the use of the on-campus point to point, shuttle buses is free with a valid university I.D., while the fares for the use of the off-campus service public transit routes varies by distance travelled. The UNC-Chapel Hill year long bus passes are prorated on a semester basis. The University of Washington charges \$33.00 per quarter for faculty and staff, and \$24.00 per quarter for graduate and undergraduate students.

Indiana University charges \$170.00 for two semester passes, \$110.00 for one semester passes, \$75.00 for one semester commuter bus passes, and \$0.60 for individual cash fares. These rates are applicable for all faculty, staff, and student user groups. The Ohio State University charges \$50.00 for an annual bus pass for all students, faculty, and staff. Texas A&M University charges \$110.00 per academic year for anyone using the off-campus

system. No charge is made for use of the on-campus service. The fee at Texas A&M is \$55.00 for use of the off-campus bus service during the summer. By way of comparison, MSU charges \$40.00 per semester for all rider categories.

In examining what each university has done to comply with the Americans with Disabilities Act (ADA), the majority replied that they have begun to purchase new buses with lift equipment, or are currently retrofitting existing buses with lift equipment. The University of Iowa has formed an administrative committee to address this issue, and has submitted plans to the Federal Government. The University of Washington has its own Dial-A-Ride system. Only Indiana University reported that they have done nothing to date to comply with the ADA. In the majority of situations, the university and the public systems have no coordinated services for handicapped individuals. Oftentimes the university will take care of the transportation of disabled university related persons on-campus and the local transit system will take care of them off-campus. Michigan State University has consolidated its handicapped transit operations with those of the general use campus bus system, and has made accessible buses available whenever needed; however, the University and CATA operate independently in terms of coordinated services for handicapped individuals.

Typical headways for on-campus bus routes range from the shortest reported time of once every three(3) minutes to once every 20 minutes depending on the route for Indiana University, to the longest of once every 30 minutes for some routes at the University of Washington. The average headway for all of the universities is 13 minutes.

Section III of the survey questionnaire was designed to discover the relationship between the university and the public transit system. When asked what percent of the total community population used public transit regularly, only four agencies answered. The largest was at Penn State University which answered 100%. The least was at the University of Kentucky where only 2% were reported to use public transit regularly.

The total number of routes for an entire public transit system was greatest at The Ohio State University, with 57 routes operated by the Central Ohio Transit Authority (COTA). Indiana University reported the fewest number of public transit system routes with nine(9). With respect to the number of public transit routes that served the university area, the greatest number cited was at the University of Washington with 50 routes and an average headway of 10 to 30 minutes. The fewest number of public routes reported to serve a university was at the University of Virginia which is only served directly by one(1) route with a 60 minute headway operated by the City of Charlottesville Transit System. In comparison, CATA currently operates a total of 25 routes, five(5) of which serve the MSU campus.

A nine "YES", seven "NO" split was seen when asked if the public system ever provided charters or special routes for the university. A vast majority said the public transit system

has routes that serve the neighborhood areas where significant numbers of university related people live. A seven "YES", eight "NO" split was seen when asked if the scheduling of these routes was designed to be compatible with peak class periods on campus. Eleven systems answered "Not Applicable", when asked how members of the university population get to campus if the public transit system's routes do not come directly to campus. A majority of systems reported that the university population is interested in increasing or altering the public transit routes to provide better service.

Although CATA does not provide special routes for the University, they do operate several routes that serve neighborhood areas in the City of East Lansing where significant numbers of University related people live. These routes have not been specifically designed to be compatible with peak class periods. For those routes that do not come directly to campus, University destined persons are expected to transfer to another CATA route or walk to campus.

Operating hours for nearly all of the public transit systems begin between 6:00 AM and 7:00 AM. The earliest reported starting time was at 5:00 AM on weekends and weekdays at The Ohio State University (COTA) and on weekdays at Georgia Tech (the Metropolitan Atlanta Transit Authority - MARTA). The latest reported finish was at 2:00 AM for weekends and weekdays at the University of Illinois.

The University of Kentucky, the University of North Carolina at Chapel Hill, the University of Georgia, and the University of Illinois all see their local transit agencies alter their schedules during the summer and school holiday periods. On weekdays, Michigan State University's local transit agency (CATA) begins at 6:00 AM and finishes at 11:00 PM. On weekends, they begin at 9:00 AM and finish at 7:00 PM.

Cooperation between the university and public transit systems seems to be close for most universities. Each of the systems who explained the relationship between the two services reported that the systems have coordinated in some manner for a number of years. Each university has had different levels of coordination, such as Indiana University and their local public system which have been coordinating for about 20 years, as well as the University of Iowa which shares a downtown transfer center with the public transit service and shares several federal and state funding sources.

Equal numbers of systems answered "YES" and "NO" when asked if their schedules change according to changes in the academic year. Both the public and university systems answered seven "YES", and nine "NO" when it came to allowing the use of each other's transit passes for free ridership on the other's systems. The majority of public systems use city buses as their main type of vehicle, with smaller shuttle buses and vans each being utilized by two

SECTION II. UNIVERSITY TRANSPORTATION

Please describe the nature of your University's transportation (bus or shuttle) system:

Relationship with Public Transit

	Public transit regular routes run to/through the campus	Public transit routes run to the campus, and the University transportation system circulates through and around the campus	There are special public transit routes designed to serve the University	Public transit and the University transportation system share transit stops	Public transit and the University share facilities	Other
University of Virginia [1]	X	X		X		X
University of Washington	X		X			
Indiana University	X	X	X	X		
University of North Carolina [2]	X	X	X	X	X	X
University of Michigan	X		X	X		
Texas A&M	X	X		X		
University of Iowa		X				
Georgia Tech	X	X		X		
University of Georgia	X		X	X		
North Carolina State	X	X		X		
Penn State	X			X	X	
Cornell University	X		X	X	X	
University of Kentucky	X	X	X	X		
University of Illinois	X		X			
Michigan State	X			X		

Table 6-3

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[1] "Other" refers to the fact that transfers are accepted from one system to the other.

[2] "Other" refers to the fact that the University has its own point-to-point shuttle system.

systems. MSU and CATA currently allow for a free interchange of ridership on each other's routes with the presentation of a free transfer from CATA.

Of all the public transit systems surveyed, 13 have a variable rate fare structure, which changes by time of day, length of trip, etc. CATA is one of the few systems surveyed that is not market rate, and employs a flat fare per ride. CATA is funded by a combination of passenger fares, local and regional taxes, local general funds, and State and Federal funds.

Six(6) universities, including Michigan State, do not contribute to the funding of the general use public transit system in their area in any way. Three(3) apiece contribute general funding and subsidize fares for University personnel and/or students. Other responses include the University of Virginia that pays for transfers between the University and public systems, and Cornell University that subsidizes their "Omni Ride Passes" and two specific routes.

Funding for public transit systems comes in a wide variety of forms. There are 16 systems that are funded by fares, 15 systems by Federal funds, 12 systems by State funds, and nine systems by local general funds, and/or a local regional tax. Eleven public systems reported that University related riders report an average or high level of satisfaction. CATA reports an average level of satisfaction based on the results of their annual on-board ridership marketing surveys. Fifteen of the reporting public systems, including CATA, use city transit buses, two use shuttle buses, and two have van pools.

Section IV of the survey examined the ridership characteristics of both the university and public systems. A total of five questions were asked concentrating on total weekday ridership, the percent of University riders, vehicle capacity and total annual ridership. The first question asked how many passengers the system carried on an average weekday. The highest number reported by a university system was 57,000 at the University of Georgia. The highest for a public system was 60,000 at The Ohio State University (COTA). The lowest reported weekday passenger counts are seen at Georgia Tech for the University system at 3,500 and at the University of Virginia of 2,500.

The Michigan State University campus bus system carries approximately 6,700 passengers on a typical schoolday, while CATA carries approximately 15,000 passengers a day on all of its routes in the Lansing/East Lansing metropolitan area. Of the total MSU system riders, 99% were reported to be students and 0.5% were reported to be faculty and staff. It was reported that, on average, approximately 54% of the passengers on the five(5) CATA public system routes serving the East Lansing area were students (or "university related"), while there were no separately reported numbers for faculty and staff.

The highest percent of student riders on the other university bus systems was 98%, with the other 2% being faculty and staff at Indiana University. The lowest percentage of students was 25% at Georgia Tech, and there was also a 1% use of the system by faculty and staff of the MARTA system. For the public systems, the highest reported percentage of students was 25% at the University of Iowa. There are also reported to be 25% faculty and 20% staff use of this public system, making a total of 70% "university related" riders. At the Ohio State University, COTA reported that approximately 22% students, 23% faculty, and 25% staff ride its public system on a typical weekday.

The highest reported capacity per vehicle is at the University of Iowa with 89 person capacity (seated plus standees) for the fixed route bus on the University system, and 80 persons (seated plus standees) on the fixed route buses used by the public system. The lowest reported capacity fixed route buses are at the University of Virginia with 37 seats on the University system, and 33 seats on the public system. For demand response vehicles, Penn State University has the lowest capacity at two(2) people on the University system. The University of Kentucky has a capacity of six(6) people for the demand response vehicles on its public system. The largest reported shuttle bus capacity is 25 seats at the University of Michigan and the smallest is 20 seats at the University of Kentucky, both of these are on the University systems. By way of comparison, Michigan State University has a capacity of 51 seats on its University fixed route buses, and 47 seats on the CATA public system's fixed route buses.

The largest University system in terms of passengers carried per year on fixed route buses is 7.25 million at the University of Georgia. They also carry approximately 8,000 daily passengers on their shuttle buses. The smallest is at the University of North Carolina which carries 750,000 people per year on the fixed route buses. The largest public system is at the University of Illinois, which carries approximately 7.4 million passengers per year. The smallest public system is the one serving Penn State University which carries 1.2 million per year on fixed route buses. The most passengers carried per year on any other form of bus was 43,500 for shuttle bus operations at the University of Kentucky, 760,000 for the demand response bus operations at North Carolina State University, and the University of Virginia system which carries 120,000 on charter buses over the course of a year. The Michigan State University system carries approximately 898,000 passengers per year, while the CATA system carries approximately 4.5 million passengers per year on its fixed route buses.

The focus of Section V of the questionnaire was on transit transfer facilities. The number of transit systems that have one or more transfer facilities to serve the University area are seven. CATA presently has one transfer facility in downtown East Lansing which is not located on the campus, but which does serve the campus population. Seven(7) systems have no reported transfer facilities. The University of North Carolina at Chapel Hill has five

facilities such facilities, and the University of Illinois has four. Five Universities have transfer facilities that serve the University area, while eight do not. Only five of the facilities are located on campus, while nine are not.

Of all the universities which reported having transfer facilities, the largest facility is at North Carolina State University. This facility is approximately 1000 square feet in size. The smallest is at Michigan State University, consisting only of a passenger waiting shelter with a size of approximately 40 square feet, and no dedicated parking spaces. Special amenities at these facilities range from emergency telephones (at the University of Virginia); to standard phones and a passenger waiting shelter at Penn State University; to a mall and transit information displays at the University of Iowa. At the present time, Michigan State has no special amenities at their on-campus facility.

A majority of these facilities consist of passenger waiting shelters that do not have commuter parking spaces devoted specifically to transit-related use. When questioned about how many people use the facilities each day, the University of Virginia had the most with approximately 7,000 people. The University of Illinois had the least with only 300 persons per day.

The question relative to "which transfers can be made at these facilities" was only answered by six universities. At Penn State University, transfers can be made from auto to bus; at the University of North Carolina at Chapel Hill, they can be made from public transit to hospital shuttle and from park-and-ride lot shuttle to public transit route. At Indiana University, transfers can be made between any Bloomington Transit bus and University Transit Route E. Transfers at Georgia Tech can be made from the MARTA rail or bus systems to the campus bus system, and at MSU transfers can be made between MSU and the CATA system.

Responsibility for operating these transfer facilities rests with the Parking Office at Penn State University, the Transportation Department at North Carolina State University, the University and Town of Chapel Hill at the University of North Carolina, and the University and the Champaign Urbana Metropolitan Transit Agency at the University of Illinois. At Michigan State University, CATA is responsible for operating their transfer facility in East Lansing. The source of operating funds for these facilities are parking fees at Penn State University, the University Department of Transportation at North Carolina State University, and general funds, permits, student fees, and State and Federal funding at the University of North Carolina. Federal, State, and local funding are operating funding sources at Michigan State University.

Maintenance responsibilities are with the Parking Office at Penn State University, the University Department of Transportation for North Carolina State University, and the University and Town of Chapel Hill at the University of North Carolina. The Capital Area

Table 6-4

SECTION V. TRANSFER FACILITIES

Does the University transit system have one or more transfer facilities to serve the University area?

	Yes	Number	No
University of Virginia	X	2	
University of Washington			X
Indiana University			X
University of North Carolina	X	5	
University of Michigan	X	1	
Texas A&M			X
University of Iowa			X
Georgia Tech			X
University of Georgia			X
North Carolina State	X	1	
Penn State	X	1	
Cornell University			X
University of Kentucky			X
University of Illinois [1]			
Michigan State [2]			

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[1] The University of Illinois did not respond to this question.

[2] Michigan State did not respond to this question.

Transit Authority has the responsibility for maintaining and funding the maintenance of the transfer facility at Michigan State. The source of maintenance funds for these facilities are parking fees at Penn State University, the University Department of Transportation for North Carolina State University, and general funds, permits, student fees, and State and Federal funding at the University of North Carolina.

Security is the responsibility of the Department of Police Services at Penn State University, the University Department of Public Safety at North Carolina State University, and University security personnel at the University of North Carolina at Chapel Hill, the University of Illinois, and Michigan State. The source of security funds for these facilities are general funds at Penn State University, general revenues at North Carolina State University, and general funds, permits, student fees, and State and Federal funding at the University of North Carolina, and parking fees at the University of Illinois. The development of these facilities was funded by the donation of University owned land and parking fees at Penn State University. The University of North Carolina paid for the construction of the facilities on the Town of Chapel Hill's land, and the University of Illinois was able to use University and Champaign-Urbana Metropolitan Transportation Authority funds for development.

Incentives for using transit were examined in Section VI of the questionnaire. When asked what incentives each university provided to increase university-related ridership on public transit, all but two schools answered. The majority of incentives provided are along the lines of allowing free transfers between the general public and university systems at the University of Virginia, the University of Iowa, and the University of Michigan. The possibility to relinquish a parking permit and receive free or discounted fares is an option at Cornell University and the University of Washington. Michigan State University presently provides no such incentives.

Eight of ten public transit agencies including the CATA service at MSU, provide no incentives to promote ridership by the University-related population. Fourteen agencies answered "Not Applicable" when asked what these incentives are. Two universities said special rates for specific groups were used as incentives, and one used special event fares.

Parking rates on campus for specific user groups were generally the highest at the University of Washington. Parking rates were \$40.00 per month for faculty and staff, and \$1.50 per day for graduate students, teaching assistants, research assistants and undergraduate students. The University of Georgia generally had the lowest monthly parking rates, with faculty paying from \$1.00 to \$11.00 per month, staff paying from \$1.00 to \$10.50 per month, graduate students, teaching assistants, and research assistants paying \$7.50, and undergraduates paying up to \$1.25. Other responses to this question included the University

of Illinois which has a \$2.50 per month charge at its campus fringe area shuttle bus parking lot. Michigan State University currently charges \$6.75 per month for faculty and staff, and \$3.75 to \$17.25 for graduate students, teaching assistants, research assistants and undergraduate students.

Nine universities (including MSU) reported that parking rates were not higher on campus when compared to rates off campus. Four had higher campus parking rates. A fairly even response of seven "YES" and six "NO" was given when asked if there were any public relations efforts to discourage driving to campus and parking on campus. Michigan State currently has no such efforts. These efforts include higher parking rates at Cornell University, a highly controlled parking system with no dedicated parking areas at the University of Virginia, marketing ads at the University of Iowa, and remote commuter lots and car pool and van pool programs at the University of Michigan.

Nine(9) universities reported that there are segments of the population that are prohibited from parking on campus, while five(5) reported no such prohibitions from on campus parking. At MSU, freshmen and the cars of students who do not register their vehicles are prohibited from parking on campus. The largest number of all-day parking provided on any campus (aside from Michigan State) is 15,000 surface lot spaces plus 2,000 metered spots at the University of Illinois. Georgia Tech has the fewest with 8,200 spaces. Michigan State University has a total of 19,184 spaces available for all-day parking.

Eleven universities have remote parking lots and provide shuttles to campus. Of all the universities where shuttles are provided, 10 are provided by the university, and three are provided by the public transit agency. When asked how riders get to campus from remote lots if no shuttles are provided, only one University replied with any response other than "Not Applicable". The University of Georgia commented that campus bus service is assigned to move people to campus from its remote lots. At MSU, there are remote parking lots with University shuttles provided to get those who use them to campus.

Thirteen of the 19 universities surveyed reported that their campus has an effective parking enforcement policy that discourages illegal and inappropriate parking. The opinion was expressed by the respondent that Michigan State University does not have a particularly effective parking enforcement program at the present time.

More general University transportation and development policies were dealt with in Section VII of the survey. Topics ranged from specific university policies, responsible parties, to techniques for achieving goals and providing master plans. Environmental issues were touched on as well.

Nine universities, including MSU, reported that they do not have an overriding policy that governs campus parking and transportation activities. Penn State University's policy is addressed in a 10 year plan, whereas the University of Iowa is striving to minimize vehicular traffic and institute a land use priority for the development of academic facilities. The University of Illinois has only rental and metered parking, while at Georgia Tech all faculty, staff and students are assigned designated parking areas and must register their vehicle with the University Parking Office. Michigan State University responded "Not Applicable" to this question.

While only five(5) Universities have formally adopted parking and transportation policies, ten have parking and transportation master plans. Eight(8) of these were developed in conjunction with an overall facilities master plan, and three(3) were developed in conjunction with a local or regional master plan. Although MSU does not have a formally adopted master plan for parking and transportation, the traffic circulation and parking study conducted several years ago is used as a general reference and guidance document.

Along with governing policies, twelve universities report that they are trying to reduce the number of single occupancy vehicles and increase the use of alternative transportation. Michigan State has no explicitly defined alternative transportation goals. There are a variety of techniques that have been employed to encourage increased use of transit. These included the following:

- The provision of free or discounted ridership on campus or public transit system buses (University of Iowa, North Carolina State University, the University of Washington, and the University of Illinois).
- Publicizing the presence of short headways and reliable service is used at the University of Michigan and Texas A&M University.
- Stricter control of parking, through the provision of less core area parking, is the most productive technique employed at the University of Virginia, the University of Kentucky, the University of Georgia, and the University of North Carolina at Chapel Hill.
- Parking rate increases are used at the Penn State University, Georgia Tech, and the University of Indiana.
- Michigan State University provides free transfers between the public and university transit systems and also uses joint service marketing advertisements.

Twelve University administrations, including Michigan State, allow or promote flex-time, or flexible hours, for the beginning and ending of the work day. Eleven Universities reported that there have been significant changes in either their parking or transportation systems in the last three years. Only two Universities have seen significant changes in the public transit system in their area over the last three years that have had a significant impact on the University. These changes include added service at the University of Washington, and additional routes to campus and a city parking permit implemented in neighborhoods adjacent to the campus of the University of Indiana. The Michigan State respondent reported no significant changes.

The campus population is expected to increase for seven universities over the next ten years, while eight expect no increase. Ten universities are expecting to handle these increases mainly by increasing their own transportation services. Nine will be increasing cooperative efforts with public transit. Six universities answered that they had other plans to handle an increasing population. These plans mainly included such actions as:

- providing more parking through an increase in peripheral parking at the University of Virginia and the University of Iowa,
- building new parking garages and parking decks at the University of Indiana and the University of North Carolina, and
- generally expanding the parking supply at the University of Kentucky.

MSU currently anticipates no campus population increase within the next 10 years.

Many universities have scheduled activities to be implemented to increase cooperative efforts between the university and the public transit system. Cornell University reports that they are eventually planning to consolidate the current public and university systems into a single operational entity. Consolidation is currently under examination at the University of Virginia. The University of Kentucky is planning on changing its routes to better facilitate passenger movement. North Carolina State University is exploring a system whereby NCSU students could ride the Raleigh public transit system at no cost with the presentation of a valid student ID. The University would then be billed by the public transit at a significant discount since the service was already being provided and no additional operating costs would be involved. The University of North Carolina at Chapel Hill is planning on changing routes, headways, hours of operation, and improving bus stop facilities in conjunction with Chapel Hill Transit. Texas A&M is exploring the provision of more parking and bus information, while Georgia Tech is investigating opportunities for greater cooperation with their local transit agency (MARTA).

Implications for Michigan State University and CATA:

The examination of the results of this survey of comparable institutions identified several possibilities for the provision of expanded coordination between the CATA and MSU bus systems and possible actions by MSU to provide expanded transit service to the campus area. In our view, the actions described below appear to be worthy of further investigation. These recommendations are presented in no particular order of priority.

1. **Pursue the use of a combination of Federal, State, and Local funds for both the replacement of the current MSU bus fleet and for the design and construction of the proposed on-campus transfer center.** Several of the other university transportation systems surveyed have successfully obtained federal funds with which to both acquire new transit vehicles and construct transfer centers or park-and-ride facilities. There do not appear to be any insurmountable legal or administrative reporting requirements that would preclude the use of this approach by Michigan State University.
2. **Initiate an expanded CATA/MSU transfer system.** With the implementation of the proposed on-campus transit transfer center, the CATA and MSU bus systems will operate a closely coordinated public transportation service for the MSU/East Lansing area. An expanded two way transfer system, with greatly increased publicity of the availability of this option should significantly increase the ridership of both systems.
3. **Initiate higher campus parking fees.** Based upon the results of the survey, the current MSU parking permit fees appear to be significantly lower than those at comparable peer institutions across the United States. The implementation of a gradual increase in current rates on an annual basis of 5-10 percent per year for the foreseeable future would bring current permit fees more in line with where they probably should be.
4. **Establish a single ticket or cash fare on the MSU bus system that matches the CATA cash fare.** In a subsequent chapter of this report, we will present observations on the fare charged by CATA for MSU students. In order for both the CATA and MSU system to experience desirable ridership growth, the user should be able to view the two systems as essentially one.

Chapter 7 - OPPORTUNITIES FOR ENHANCED CATA/MSU SERVICE COORDINATION

Introduction

A major element of this assignment was the examination of the manner in which the current operations of the CATA and MSU bus systems could be more closely coordinated in order to provide enhanced public transportation services to the East Lansing area. The purpose of this chapter of the project final report is to describe the various routing and scheduling coordination activities which were investigated and to present the recommended service, fare structure and transfer policy actions.

CATA / Michigan State University Service Recommendations:

The transportation system in the Lansing/East Lansing area is at a critical juncture in terms of defining the appropriate level of public transportation service to be offered relative to Michigan State University (MSU), service integration amongst the various service providers, and the development of appropriate local and intercity ground transportation terminals. Moreover, CATA has experienced a significant decline in ridership in the last few years by passengers who formerly used the system for travel to and from the University.

Based upon an examination of various studies previously conducted by CATA on rider and non-rider travel characteristics, fare elasticity studies, and current travel patterns in the study area, and an assessment of the manner in which other university communities have addressed similar issues and concerns, the members of the consultant team developed a series of recommendations for financial, physical and operational improvements to the current CATA and MSU bus systems. The most important of these recommendations are as follows:

- **the consideration of a reduced CATA University student fare for MSU destined travellers, and (potentially) for all other college and university students in the CATA service area;**
- **the construction of a single, consolidated, on-campus transfer center for use by both CATA and MSU bus services; and**
- **the restructuring of the majority of local CATA routes in the East Lansing area to provide improved service to the University campus and service into the interior of the campus proper.**

The location and design concept associated with the recommended on-campus transit transfer center is described in Chapter 6 and will thus not be repeated here.

Recommended Fare Structure: The single most often mentioned deterrent to the use of the CATA system by the MSU population is the perceived excessive fare for short distance trips. It is recommended that serious consideration be given to the establishment of a separate CATA fare category for MSU undergraduate and graduate students (and potentially for all other college students in the greater Lansing area as well). Initially this may simply take the form of a reduced \$0.50 cash fare upon presentation of a valid university I.D. card. However, in the long term we would recommend the establishment of a formal joint fare and transfer policy between the CATA and MSU bus systems.

The implementation of this fare structure change is estimated to result in a ridership increase on the effected East Lansing area CATA routes on the order of 20-25 percent. Once the routes are extended to the on-campus transfer facility site, the suggested MSU fare structure revisions are implemented, and the proposed on-campus transfer facility is completed, it is estimated that the MSU related ridership on these CATA routes will increase on the order of 60-75 percent relative to current levels.

The MSU bus system is currently breaking even in terms of the coverage of its direct operating costs, but is not making any contributions towards a capital reserve fund with which to purchase new vehicles. It is recommended that a cash drop fare of \$0.50 be inaugurated for occasional riders, and that the cost of the bus tickets and passes offered also be increased, reflecting this cash fare increase and yet still providing a volume discount. An appropriate fare may be 12 single ride tickets for \$5.00 (a 20% discount over the equivalent cash fare of \$6.00), and a monthly pass valued at \$25.00 per month or a semester pass costing \$80.00 per semester.

The latter ticket and monthly/semester pass fare structure is only suggested for implementation if the University does not establish a rate to be paid as part of the overall student tuition fees, as recommended in Chapter 6.

In Chapter Six, Page 6-18, Recommendation No. 4, it was recommended that, upon the implementation of the new CATA route structure in the East Lansing area, the University and CATA ought to expand the current transfer system. This recommendation is repeated here since the objective, from the passenger perspective, is to create a "seamless" transfer. Students arriving on campus by CATA should be able to transfer onto MSU vehicles without an additional boarding fare or the necessity of a student pass. University faculty and employees should also be given this opportunity. The current transfer system is underutilized

and cumbersome. The accounting should be both ways, with a reconciliation only for the difference. With the implementation of a revised fare structure for MSU students and an expanded and coordinated transfer policy, ridership on both systems will increase.

Recommended Operational Changes: Associated with the new consolidated, on-campus transit transfer center would be a series of modifications to the current CATA routings in the City of East Lansing. The series of figures on the following several pages illustrate both the existing East Lansing area CATA routes and the recommended routing modifications to each route.

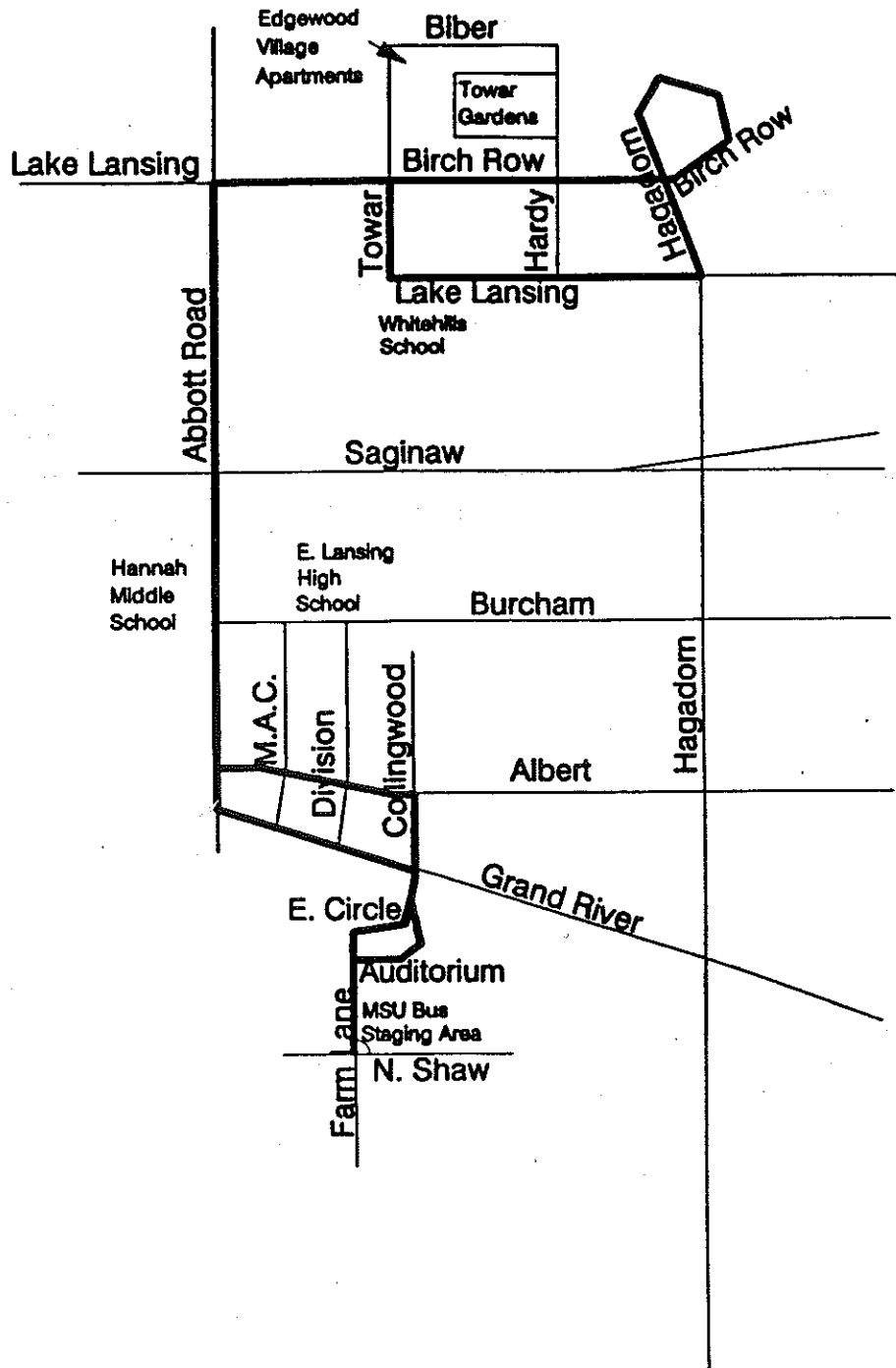
It is recommended that CATA Routes 17, 19, 20 and 21 penetrate into the campus to more directly serve the MSU population. It is further recommended that upon reaching Grand River Avenue, these routes proceed to Collingwood Avenue, and then follow this street and its internal campus connections, to the proposed on-campus transfer center to be located in the north-east quadrant of the intersection of Farm Lane and North Shaw Lane.

Routes 19 and 20 would be essentially unchanged except that they would continue along Grand River to Collingwood, and then proceed into the campus. The terminus point of these two routes would move to the on-campus transfer terminal instead of the present Albert Street transfer point. The service frequency for both of these two routes would remain at 30 minutes. Passengers destined to Downtown East Lansing or intending to transfer to CATA Route 1 (East Lansing - Meridian Mall) would get on and off at the current stop locations along Grand River Avenue. We recommend that the existing bus stop zones along Grand River at Abbott, MAC and Collingwood be expanded.

Route 17 would utilize Abbott Road between Grand River and Burcham to better serve the City of East Lansing municipal offices and the court house. The extension of Route 17 into the University will add 1.2 miles to the route length which, at a 30 minute headway, would require an average operating speed of 18 mph to maintain schedule. In our opinion, the maximum comfortable operating speed for this route, leaving some time for a layover and recovery at the terminal point, is only 16 mph. The suggested routing modification would thus require either extending the headway to 40 minutes or decreasing the distance.

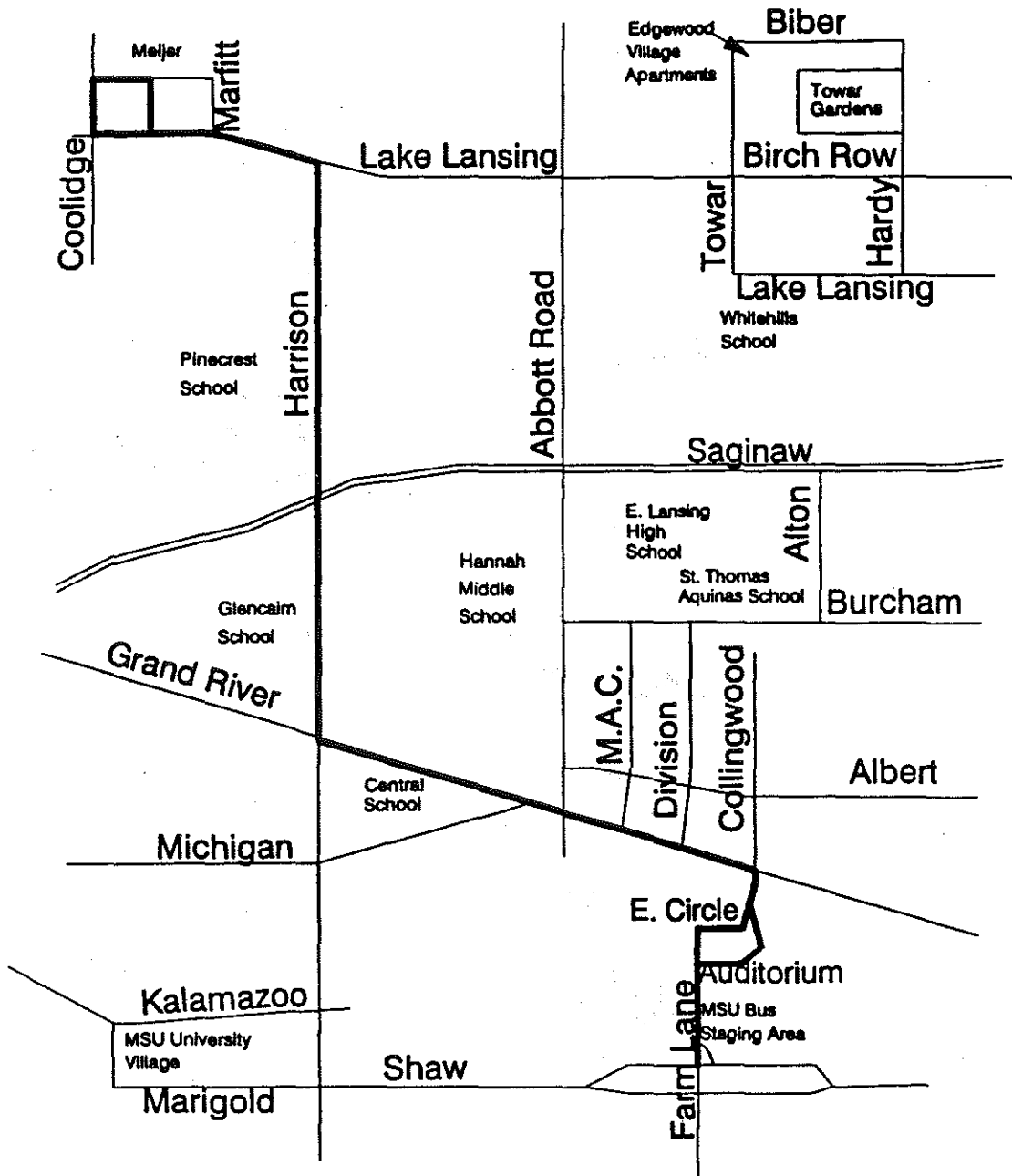
The 1992 CATA ridership marketing survey indicates an average weekday productivity of 150-200 trips on this route. An extension of the headway to 40 minutes would materially affect current ridership and should thus be avoided if at all possible. Route 17 currently takes two significant route deviations north of Birch Row. The first is to serve the Hagadorn Loop. The 1992 survey indicates that an average of nine(9) people a day board on the loop.

Figure 7-1
Attachment A



17B - TOWAR GARDENS (Proposed)

Figure 7-2
Attachment B



19B - NORTH HARRISON (Proposed)

However, all of the residences served by this deviation are within an acceptable walking distance of the intersection of Birch Row and Hagadorn. Likewise, the diversion north on Hardy to the Towar Gardens provides only minimal service and Birch Row remains within acceptable walking distance. An average of eight(8) persons a day may be inconvenienced by having to walk to Birch Row. It is our recommendation that Route 17 be curtailed to operate only westward along Birch Row, thereby providing the ability to retain a thirty (30) minute headway at an average operating speed of 15.8 mph.

Route 21 - Hagadorn/Burcham was examined to see if there were any possibilities of reducing the current 40 minute headway to 30 minutes for compatibility with the other East Lansing CATA routes. Alternative action examined included:

- (a) Increasing the Operating Speed: In order to achieve a thirty minute headway by simply increasing the vehicle speed would require an average operating speed of 19.4 mph. This is unachievable given the nature of the roadways and the diverse utilization of the bus stops along the route.
- (b) Relocate from MAC Ave to Collingwood Drive: Although this would reduce the distance travelled by almost a half mile, it would not significantly reduce the travel time due to the constricted pavement width, curvilinear geometrics and lack of parking restrictions along the route. The use of Collingwood Drive as a regular bus route would also likely meet with significant residential opposition. It is further estimated that approximately 25% - 33% of the current passengers would be inconvenienced by this action. For those reasons, this change is not recommended.
- (c) Return to MAC and Grand River: Large and time consuming one-way loops are undesirable in urban bus transit operations. This alteration would accomplish this objective. However, distance and travel time would be added which would require maintaining the present 40 minute headway. In order to make this suggested routing change while maintaining the current 40 minute headway, the average operating speed would have to be above the maximum practical assumed operating speed of 16 mph, leaving little opportunity for recovery time. If that loop were to be avoided, it would bring the required operating speed down to 16 mph. However, both of these alterations would likely inconvenience approximately 25% -33% of the current users along the route. For these reasons, this change is also not recommended.
- (d) Retain One Way Loop but Exclude Park Lake Loop: It remains desirable to reduce the headway of this route to 30 minutes if at all possible. Approximately 150-200 people used the route on an average weekday at the time of the 1992 marketing survey. The initiation of a 30 minute headway should increase this ridership level on

the order of 10%-15%. Most of the passengers on the current loop use the Haslett stop located approximately 80 feet east of the Hagadorn stop, an easy walking distance to Hagadorn. The next two most frequently used stops are at Haslett and Ferndale and at Haslett and Deer Path. It is estimated that approximately 90% of those persons presently using these stops would still continue to use the bus service if this suggested routing revision and headway modification were to be implemented. Very few people (less than seven(7) per day) use the stops beyond Deer Path. This includes the activity associated with the senior citizen complex at Burcham Hills.

After having carefully examined all of these routing and headway modification options, it was the collective recommendation of the consultant and CATA staff that, while reducing the headway of this route to the same 30 minutes frequency as the other routes in the East Lansing area is desirable, it is a matter of trading off routing and coverage with frequency of service. Having accepted that, a 45 minute headway is more desirable, such that all buses would meet every second circuit and the large one-way loop can be omitted, the recommended routing is a variation of Alternative (c) as described above, and as illustrated on the figure on the following page.

The vehicle northbound would leave the transit transfer facility and proceed to Grand River Avenue, then proceed west to MAC, north to Burcham Drive, east to Hagadorn Road, north to Haslett Road and loop back using Haslett/Merritt Road and the East Lansing Drive loop. The bus would return on the same streets except that it would turn left onto Albert to Collingwood due to the prohibited left turn from MAC onto eastbound Grand River Avenue. On the southern leg of the route, the vehicle would operate along the existing route, but in two directions through the campus. In order to facilitate this routing, we recommend the installation of an exclusive left turn phase at the traffic signal on Haslett Road at Hagadorn Road.

The recommended modifications to the current CATA operations in the East Lansing area will not require the assignment of any additional vehicles to this service and is thus anticipated to result in only a modest increase in operating costs. As noted previously, it is estimated that the provision of the recommended direct service to the heart of the University campus, combined with the effects of the recommended fare structure revisions, the other recommended routing modifications, and the construction of the proposed on-campus transfer facility will result in ridership increases on the order of 60-75 percent relative to currently observed levels. The additional revenues associated by these ridership increases should offset the projected increases in direct operating costs.

Attachment D

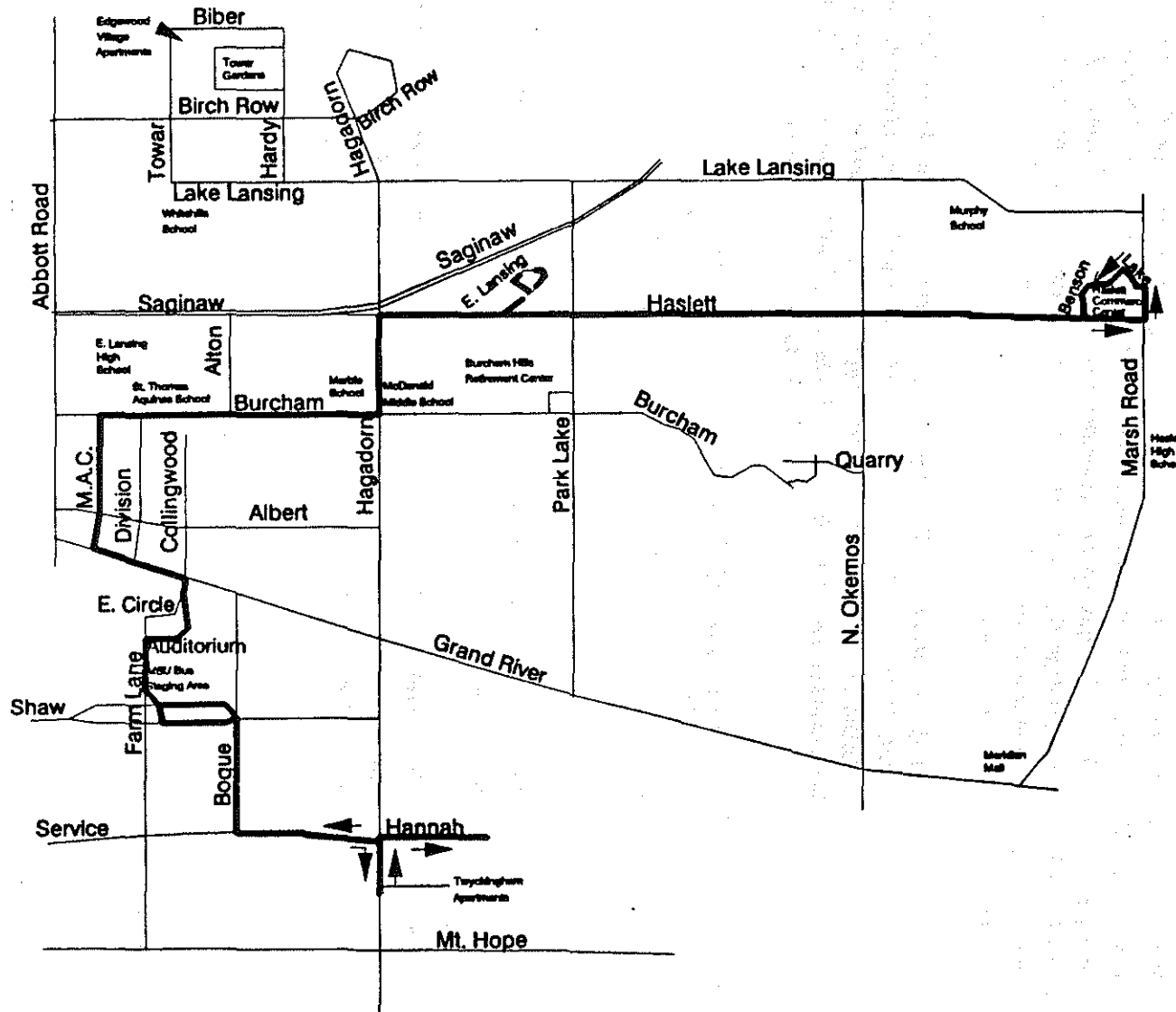


Figure 7-4

21B - MSU HASLETT (Proposed)

With regard to the current MSU bus operations, it is recommended that both the existing routings and service frequencies be continued for the foreseeable future without modification.

With regard to the impact of the added level of CATA bus service on the campus street system, we do not anticipate that the marginally greater number of additional vehicles (7 buses an hour) will require any special consideration over current issues. However, we would make the observation that there are some current operational weaknesses in the on-campus traffic circulation system which should be addressed by MSU regardless of the potential changes in bus service. These are as follows:

- **The three phase traffic signal at the intersection of Farm Lane and East Circle Drive should be replaced with a simpler two phase signal installation. The currently observed traffic congestion levels at this intersection could be further alleviated by minor geometric improvements and the addition of dedicated turn lanes on all approaches.**
- **Removing some of the angle parking spaces along the north side of East Circle Drive adjacent to the Student Services and Natural Sciences Buildings. Due to the bend in the road at this location, the current angle parking requires an exiting vehicle to back-up without proper sight distances.**
- **The provision of improved pedestrian safety features along Farm Lane, particularly at pathway crossings.**
- **The provision of improved signing of the overall campus layout and the elimination of current obstacles to vehicular, bicycle, and pedestrian circulation throughout the campus.**

Chapter 8 - PROJECT COST ESTIMATES AND IMPLEMENTATION PROCESS

The total estimated capital costs associated with the physical recommendations of this project fall into several different areas, namely, the CATA/MSU on-campus transfer center, the proposed intercity terminal facility, and the replacement of the current MSU bus fleet. Each of these items is discussed separately below.

CATA/MSU On-Campus Transfer Center:

As shown on Table 8-1 on the following page, the total estimated cost of the CATA/MSU on-campus transit transfer center facility as described in Chapter 5 is approximately \$1,857,300 expressed in terms of 1994 dollars. This estimated cost includes the construction of the transfer facility structure itself, architectural and engineering fees, and contingencies.

Reflective of the current use of the site as a surface parking lot for Michigan State University, only relatively modest site development costs are anticipated. Similarly, since the site is currently owned by the University, and it is anticipated that MSU would retain ownership of the parcel, no formal land acquisition costs have been assumed. However, reflective of the fact that this land does, indeed, have a significant value, a theoretical land transfer value has been assumed for the purposes of use as a component of the local matching share for funding applications. Based upon recent estimates, a land value for this University owned property of approximately \$100,000 per acre has been assumed. Thus, the assumed value of this 0.72 acre parcel has been estimated to be approximately \$72,000.

It should also be particularly noted that the potential costs associated with the relocation of the approximately 40 surface parking spaces to be displaced are not included in the cost estimate for this transit transfer facility.

The potential sources of funds required for the implementation of this facility include, but are not limited to, the Federal Transit Administration (FTA) of the U.S. Department of Transportation, the Michigan Department of Transportation, the Capital Area Transportation Authority, and Michigan State University.

Intercity Terminal Facility:

As shown on Table 8-2, the total estimated cost of the proposed intercity terminal facility as described in Chapter 5 is approximately \$4,530,000 expressed in terms of 1994 dollars. This

Table 8-1
ESTIMATED DEVELOPMENT COSTS
CATA/MSU On-Campus Transfer Center

<u>Cost Element</u>	<u>Area</u> <u>(Sq.Ft.)</u>	<u>Unit Cost</u>	<u>Est. Cost</u>
Public Areas (2-story)	2,450	\$160.00	\$392,000
Other Building Areas	3,005	\$120.00	\$360,600
Passenger Waiting Area Canopy	5,000	\$60.00	\$300,000
Entry Bridge Structure	1,200	\$100.00	\$120,000
Entry Bridge Canopy	1,300	\$60.00	\$78,000
Site Development (total area)	31,355	\$8.00	\$250,840
		Subtotal	\$1,501,440 (Say \$1,502,000)
Architectural/Engineering Fees @ 8.0%			\$120,115 (Say \$121,000)
		Subtotal	\$1,623,000
Contingencies @ 10.0%			\$162,300
Total Construction Costs			\$1,785,300
Land Acquisition Costs (Land value, no ownership transfer)	31,365	\$2.30	\$72,140 (Say \$72,000)
ESTIMATED GRAND TOTAL COSTS			\$1,857,440 (Say \$1,858,000)

estimated cost includes the construction of the terminal facility itself, architectural and engineering fees, contingencies, and a preliminary estimate of land acquisition and site development costs.

Reflective of the current commercial and industrial uses of this site, the combination of the estimated site development and land acquisition costs have been preliminarily estimated to be on the order of \$3,000,000. Particularly in the case of the commercial activities along the north side of the tracks, previous uses may have resulted in soil contamination which would have to be remediated by this project. Reflective of the conceptual nature of the design effort, no estimates have been made of the costs which might be required to carry out any such remedial activities.

The potential sources of funds for the implementation of this facility include, but are not limited to, the Federal Transit Administration (FTA) of the U.S. Department of Transportation, Amtrak, the Michigan Department of Transportation, the private intercity bus companies (Greyhound and Indian Trails), the City of East Lansing, and private developers.

In the case of both the CATA/MSU on-campus transit transfer center and the intercity terminal facility, generalized unit cost estimates reflective of recent experience in the central Michigan area with structures of a similar size and level of complexity in urban and suburban areas have been employed to arrive at the facility cost estimates. These costs are thus subject to change once more detailed, project specific architectural and engineering studies have been undertaken. However, these cost estimates are believed to be good "order of magnitude" estimates for such facilities.

MSU Bus Fleet Replacement:

The current Michigan State University campus bus fleet has approached the end of its functional life expectancy. Although the vehicles have been well maintained, their age combined with their heavy utilization by large numbers of students every day have taken their toll. In order to be potentially eligible for the use of federal and/or state financial assistance, any new vehicles acquired would have to be lift equipped so as to be accessible by disabled individuals.

Table 8-3 provides a summary description (1993 statistics) of the current MSU bus fleet. One vehicle, a smaller lift-equipped bus, is two years old. The next newest buses are 18 years of age (2 - 1976 vintage vehicles), with all of the remaining fleet being far older, with the majority being 28-30 years of age. This is in excess of double the normal bus fleet life expectancy of a typical urban transit system of 12-15 years.

Table 8-2
ESTIMATED DEVELOPMENT COSTS
Intercity Terminal Facility

<u>Cost Element</u>	<u>Area</u> <u>(Sq.Ft.)</u>	<u>Unit Cost</u>	<u>Est. Cost</u>
Terminal Building	6,500	\$120.00	\$780,000
Rail Platform Canopies	4,000	\$60.00	\$240,000
Site Development (total area)	151,600	\$10.00	\$1,516,000
		Subtotal	\$2,536,000
Architectural/Engineering Fees @ 8.0%			\$202,880 (Say \$203,000)
		Subtotal	\$2,739,000
Contingencies @ 10.0%			\$273,900
Total Construction Costs			\$3,012,900
Land Acquisition Costs	151,600	\$10.00	\$1,516,000
ESTIMATED GRAND TOTAL COSTS			\$4,528,900 (Say \$4,530,000)

Dependent upon the exact size and features, a modern diesel powered urban transit bus can cost on the order of \$200,000 to \$250,000 per unit. Thus, the acquisition of approximately ten(10) new replacement vehicles for the current MSU bus fleet could cost between \$2.0 million and \$2.5 million. As reported in Chapter 6 of this report, several other universities have been successful in obtaining federal and/or state financial assistance for similar vehicle replacement actions. If this avenue could be successfully pursued by Michigan State University, approximately 80 percent of the cost could be eligible for funding through the federal government's transit capital assistance program, leaving approximately 20 percent of the total cost to be paid by other non-federal (i.e., state, local, or university) sources.

Even if the university had to provide 100 percent of the 20 percent non-federal funding match, the required funding obligation for 10 vehicles as described above would be on the order of \$400,000 to \$500,000 or an amount approximately equivalent to the cost of two(2) new buses.

It is recognized, however, that the total amount of federal transit assistance funds available for such vehicle replacement activities is limited, both within the Lansing/East Lansing metropolitan area and within the State of Michigan as a whole. It will thus be incumbent upon MSU, CATA, and the Michigan Department of Transportation to carefully review the opportunities and constraints associated with the potential use of such federal funds in order to ensure that the best possible allocation of funds is made in order to benefit the entire region.

Another potential funding option would be the inclusion of the cost of the MSU replacement transit vehicles in a general university capital acquisition and construction bond. Given the current age of the MSU bus fleet and the operational history of the system, it would not be unreasonable to assume that any newly acquired vehicles would be retained in operation for a period of time well in excess of ten years, a commonly used benchmark for the determination of capital versus operating expenditures.

Regardless of which funding mechanism is ultimately decided to be employed, the current MSU bus fleet is in critical need of replacement, and this action should be given a very high priority by the University, CATA, and the Michigan Department of Transportation.

Implementation Issues and Concerns:

There are a variety of significant issues and concerns associated with the implementation of the recommendations summarized above which are still unresolved at this time. Each of the major capital expenditure items has differing issues which must be addressed and/or finally

resolved prior to implementation of the recommended action.

CATA/MSU On-Campus Transfer Center. One of the more substantive issues still outstanding is the determination of what to do about the approximately 40 parking spaces which would be displaced by construction of the transfer center. While the number of spaces is not particularly great, they are in high demand throughout most of the day due to their location in the central campus area. The simplest option may be to accept the loss of these parking spaces without their replacement and encourage current users to avail themselves of the expanded and coordinated CATA and MSU bus services which will be made available in the central campus area.

We have earlier made mention that irrespective of the small number of additional buses added to current traffic volumes, the sections of Farm Lane and East Circle Drive between the transfer center site and Grand River Boulevard have a number of currently unresolved safety and operational issues. We view it as unfortunate that the proposed addition of seven(7) buses per hour along these campus streets has the potential to raise the spectre of these deficiencies. However, perhaps using this proposed increase in transit service as the principal rationale, we would strongly recommend that the University undertake a very practical and operational examination of its current traffic circulation and pedestrian safety problems in this area, with the resolve to engage in a reconstruction program designed to address all relevant issues.

With regard to the potential for noise, vehicle exhaust emissions, etc. that may emanate from the transfer facility and its uses (i.e., idling buses), we do not envision these as having any appreciable effect nor deteriorating the current environment. Likewise, we do not see the facility and its uses as resulting in any diminishment in the currently observed levels of safety and security on the campus. On the contrary, the higher levels of pedestrian activity throughout the day associated with the transfer center, and its open, inviting design should actually contribute to heightened feelings of safety and security.

Intercity Terminal Facility. There are a substantial number of unresolved issues affecting the construction of this facility. For the most part, these issues are external in nature to the site itself. The determination of whether or not Harrison Road should be grade separated from the Grand Trunk Railroad line will clearly effect the potentials for using the recommended site for an intercity terminal facility. Similarly, the ultimate design of the intersection of Trowbridge Road and Harrison Road at such time as the extension of Trowbridge Road into the Michigan State University campus proper takes place will have a direct bearing on the access and circulation of the site.

Indeed, the proposed Intercity Terminal Facility should perhaps more appropriately be viewed as a major consideration in the development of final decisions relative to the Trowbridge Extension, possible grade separation of the Grand Trunk Railroad, and the ultimate design of the Trowbridge/Harrison intersection. Moreover, traffic operations and the design of adjacent land parcel access points along Trowbridge itself between Harrison Road and the interchange with I-496 must also be considered. A comprehensive approach to the examination of all of these elements in a very interrelated fashion is extremely important to ensure that the best overall solution for the area is achieved. Such a comprehensive approach will also ensure that any potentially negative traffic impacts as may be feared by the City of East Lansing and the merchant community along Trowbridge Road can be thoroughly addressed.

The ultimate disposition of the commercial activities located along the north side of the tracks, particularly including the Michigan High School Athletic Association (MHSAA) complex, and the future use of the Michigan State University facilities south of the tracks will also greatly influence the design, cost, and constructibility of the proposed intercity terminal. As noted earlier in this report, previous uses may have resulted in soil contamination on some portions of the site which would have to be remediated by this project.

Finally, the implementation of the proposed intercity terminal facility will not likely proceed unless the project has an identified "sponsor" or "champion" who is committed to its creation. Potential sponsors include the Capital Area Rail Council, Amtrak or the private intercity bus operators, the State Department of Transportation, or the City of East Lansing.

Adding further complexity to this situation is the ongoing effort to initiate the design and construction of a consolidated CATA, Greyhound and Indian Trails bus terminal in Downtown Lansing. It is possible that funding may be available in the near term for only one, new intercity terminal facility in the Greater Lansing Area; that is, in either Lansing or East Lansing but not both. A clearly defined course of action is thus called for to enable the proposed intercity terminal facility to be implemented. It is suggested that the Michigan Department of Transportation take the lead role in resolving this concern.

MSU Bus Fleet Replacement. In the case of the replacement of the current MSU bus fleet, the principal implementation issue still not fully resolved appears to be that of defining the particular funding strategy to be pursued. All of the participants in the study process acknowledge the need to replace the current aging fleet in the near future. The only outstanding questions are where the required funds will come from, and what level of financial commitment will be required from the University. It is suggested that this issue be

given immediate attention by Michigan State University, CATA, and the Michigan Department of Transportation.

Suggested Implementation Schedule:

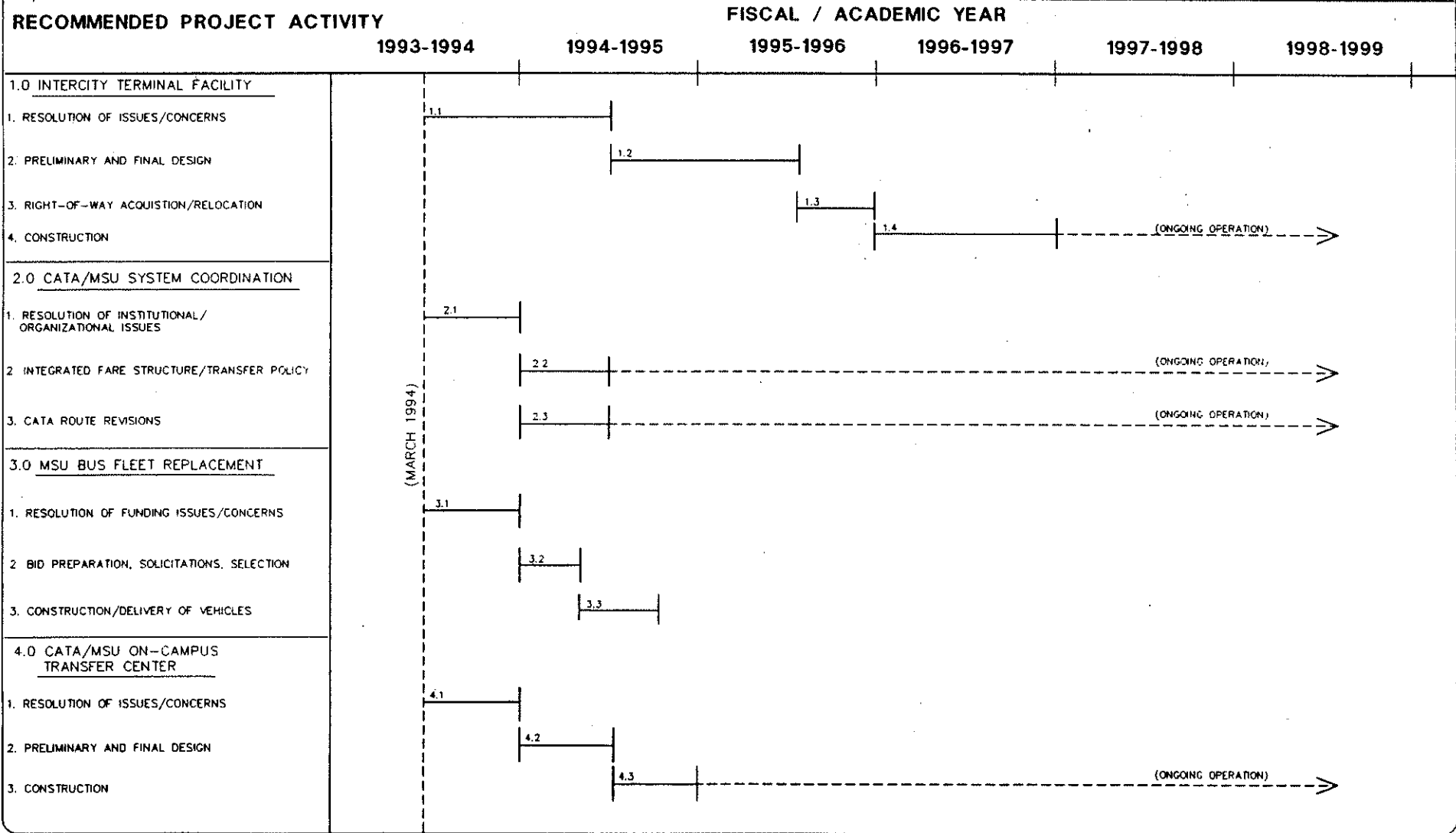
Figure 8-1 on the following page presents a suggested implementation phasing strategy for each of the major recommended actions. These major actions are:

1. Intercity Terminal Facility,
2. Expanded CATA/MSU Service Coordination,
3. MSU Bus Fleet Replacement, and
4. CATA/MSU On-Campus Transfer Center

The estimated implementation timing of these various actions ranges from less than a full year (for the initiation of expanded CATA/MSU service coordination) to as long as 3-4 years for the design and construction of the intercity terminal facility. It should be particularly noted that the major recommendations are relatively independent of one another, and can thus be pursued as separate activities. For example, the suggested revisions to the existing CATA East Lansing routes to penetrate the MSU campus could potentially be implemented in time for the beginning of the Fall Semester for the 1994-1995 academic year.

In actuality, the implementation process for all of these principal recommendations has already been initiated through a series of meetings and presentations with senior representatives of Michigan State University, the CATA Board of Directors, the City of East Lansing, and the Michigan Department of Transportation. The key factor in ensuring the successful implementation of this project's technical recommendations will be the continuation of these interagency communications.

FIGURE 8-1 POTENTIAL IMPLEMENTATION SCHEDULE LANSING TRANSIT COORDINATION STUDY



**Table 8-3
CURRENT MICHIGAN STATE UNIVERSITY FLEET PROFILE**

<u>Unit</u>	<u>Age</u>	<u>Model</u>
0509	30	TDH-5303
0510	30	TDH-5303
0512	2	Champion
0513	29	TDH-5303
0514	29	TDH-5303
0515	29	TDH-5303
0516	29	TDH-5303
0517	28	TDH-5303
0518	28	TDH-5303
0519	28	TDH-5303
0520	28	TDH-5303
0521	18	T8H-5307 A
0522	18	T8H-5307 A
0523	27	TDH-5303
0524	25	T8H-5303
0525	24	T6H-5305
0526	24	T6H-5305
0527	24	T6H-5305
0528	22	T6H-5307 N
0529	22	T6H-5307 N
Average	24.7	

AGENCY REVIEW COMMENTS

MICHIGAN STATE UNIVERSITY

AUTOMOTIVE SERVICES
CENTRAL SERVICES BUILDING N.W.

EAST LANSING • MICHIGAN • 48824-1001

May 9, 1994

Kip Grimes, Project Manager
Transportation Services Section
Michigan Department of Transportation
UPTRAN/Passenger Transportation Division
P.O. Box 30050
Lansing, MI 48909

Dear Kip:

Enclosed is Tom Kehler's summary of the Transportation Coordination Study (draft final report) prepared by Garove/Slade Associates, Inc. My observations concur with his, plus:

- 1) Generally, the report does not seem to focus on the specific goals of the Request for Proposal.
- 2) Recommendations are sprinkled throughout the text, rather than consolidated, and are more difficult to absorb and evaluate. Moreover, some seem unrelated to the intended scope of the study.
- 3) I was unable to determine that specific University concerns were addressed or given high priority.

Please convey our concerns to the consultants and our invitation to contact us if additional information or clarification is necessary.

Sincerely,


Gene Garrison
Manager

c. R. Flinn
T. Kehler

North		RECEIVED MAY 13 1994 TRANSPORTATION SERVICES SECTION	Metro
South			
File			Secretary

wp/tcssum.wp5

MSU is an Affirmative Action/Equal Opportunity Institution

**MICHIGAN STATE
UNIVERSITY**

MEMORANDUM

TO: Gene Garrison
FROM: Thomas W. Kehlef *[Signature]*
DATE: May 2, 1994
SUBJECT: Greater Lansing Public Transportation Coordination Study -
Draft Final Report Dated April 1994

Gene, below are my comments relative to the subject study. Enclosed are copies of my two letters dated January 20 and 28, 1994 to Mr. Kipp Grimes that outlined MSU's concerns and issues regarding the study. These points were submitted for inclusion in the consultant's final report. Also enclosed is a copy of our interpretation of Kipp's notes from the Operations meeting on Feb. 16.

1. The report does not include an Executive Summary which was requested by the Technical Committee. This needs to be incorporated into the final report.
2. Page 1-1: The nature of the "critical junction" of the transportation system in the Lansing/East Lansing area is not adequately explained. What evidence exists in the community that supports this conclusion?
3. Page 1-3: The report talks about more stringent future air quality requirements, but what is the air quality in East Lansing and does the air quality necessitate the need to control auto use? The report implies that this is the case, but is this fact?
4. Table 2-1: I don't believe MSU staff is recommending a CATA/MSU driver break area or bicycle storage/locker facilities. The report does not present adequate evidence to support the inclusion of non-transportation functions 3 & 4.
5. Table 2-2: Items 9, 10, 11, 12, and 14 (bike storage facilities) are facilities that may not be able to be justified.
6. Page 2-4, paragraph 1: The number of intercity terminal employees would likely be very low and not provide the additional margin needed for profitability for businesses.

Revise the first paragraph to take out "critical junction" and the CATA ridership decline. This P needs to be more upbeat and positive.

Change + the heading to "Possible"



**DIVISION OF
CAMPUS PARK
AND PLANNING**

Thomas W. Kehlef
Director

Michigan State University
412 Olds Hall
East Lansing, Michigan
48824-1047

517/355-9582
FAX: 517/336-1090

change heading to "Possible"

- 7. Table 2-3: Again, I would have to question the feasibility of these potential non-transportation functions being included in a consolidated intercity terminal facility. I don't think Item 3, Police Substation, is feasible, particularly in light of the objections Bruce Benson, Director of Police and Public Safety, presented at the Operations meeting.
- 8. Page 3-7, paragraph 3: The notion that the potential for substantial increases in both intercity bus and intercity rail ridership as a result of changes in energy costs and governmental policies is not supported.
- 9. Page 5-2, paragraph 4: Some of the unresolved external issues which need resolution before a final design can be recommended are:
 - a. What will be the impact of the addition of intercity carriers on Harrison Avenue and Trowbridge Road? Need an area traffic analysis that would forecast the impacts of the proposed intercity terminal on Trowbridge Road and Harrison Avenue.
 - b. What will be the impact on traffic and parking from expanded rail passenger services?
 - c. Would the new site improve ridership for intercity carriers? Also, would the facility be served adequately by intercity and local buses?
 - d. The report appears not to identify the potential costs and sources of funds to purchase two existing businesses and relocate facilities for the Michigan High School Athletic Association and MSU.

Delete 1, 2

- 10. Page 6-16, Implications for MSU and CATA: More discussion on implications for MSU are needed with the administration before incorporation in this report.
- 11. Page 8-1, CATA/MSU On Campus Transfer Center: Cost estimates do not include relocation costs for existing MSU facilities.
- 12. Page 8-3, paragraph 6: I don't believe there is a consensus on the configuration of the transfer center. Questions and/or issues not adequately addressed include:
 - a. If non-transportation facilities are going to be proposed, the report needs to address the cost of these facilities and how they are to be funded.
 - b. The study needs to clarify how MSU bus ridership will be affected by the consolidation of the two transit carriers.
 - c. Before development of facilities at the transfer center, the University would like a trial period to determine the feasibility of the consolidation.
 - d. Need to demonstrate that service changes will get people out of cars and into buses.
 - e. The University is not convinced the community will be supportive of the transfer center. The concept of taxing students to fund the facility may not be feasible.

Add a footnote to Table 8-1 that "Relocation or 40+ parking spaces is not included in the cost estimate"

Take out the first at the bottom of Pg 8-3.

CAPITAL AREA TRANSPORTATION AUTHORITY

BOARD OF DIRECTORS MEETING

Wednesday, May 18, 1994
4:00 p.m. - CATA Offices

AGENDA

- I. CALL TO ORDER
- II. MINUTES OF APRIL 27, 1994 BOARD MEETING
- III. TREASURER'S REPORT FOR APRIL 1994
- IV. PUBLIC COMMENTS & CORRESPONDENCE TO THE BOARD
- V. CHAIRPERSON'S COMMENTS
- VI. EXECUTIVE DIRECTOR'S REPORT
- VII. ACTION ITEMS
 - A. DONATION OF TOKENS TO GATEWAY COMMUNITY SERVICES
Proposed Motion: That the Capital Area Transportation Authority Board of Directors authorizes the donation of 2,000 tokens to Gateway Community Services for use in its Peacemaker Camp.
 - B. PROPOSED POLICY CHANGES
Proposed Motion: That the proposed policy changes be adopted.
 - C. CITY OF EAST LANSING REQUESTS FOR TROLLEY SERVICE
Proposed Motion: That the CATA Board of Directors approve the operation of a special route in the East Lansing area each Wednesday from Wednesday, May 25 through Wednesday, September 28, 1994. The City of East Lansing will pay marginal costs for running this special route. In addition, the Board also approves the operation of trolleys for the East Lansing Art Festival on May 21 and 22, 1994, with the City paying the necessary costs.
 - D. APPROVAL OF EAST LANSING SERVICE CHANGES
Proposed Motion: That the CATA Board of Directors accept the proposed service modifications to East Lansing routes in an effort to better serve the student market and Michigan State University. The Board of Directors also authorize staff to begin implementing the proposed service and schedule changes with the goal of implementing the service changes in time for the August 22, 1994 schedule change, including the free ride promotion.

(over)

410 Abbott Road
East Lansing, Mi 48823



Telephone
(517) 337-1731

April 27, 1994

Mr. Kip Grimes, Project Manager
Transportation Services Section
Michigan Department of Transportation
UPTRAN/Passenger Transportation Division
P.O. Box 30050
Lansing, Michigan 48909

North		RECEIVED	Metro
South			
File		MAY 02 1994	SECRET
		TRANSPORTATION SERVICES SECTION	

Re: Greater Lansing Public Transportation Coordination Study

Dear Mr. Grimes:

The City Transportation Commission and City Council has reviewed recommendations developed by the Greater Lansing Public Transportation Coordination Study Committee for improving public transit systems serving the East Lansing area. In this regard, please be informed that the City of East Lansing tentatively supports the general design concepts developed by the Study Committee regarding the intermodal facility, the CATA/MSU bus transfer facility and the East Lansing bus route changes subject to the following conditions:

1. MDOT undertake a comprehensive study of traffic conditions in the Trowbridge Road-Harrison Avenue area to evaluate existing congestion and safety levels and to assess ramifications of placing the intermodal facility along Trowbridge Road. The study should also evaluate traffic impacts created by anticipated future increases in train traffic along the Grand Trunk Western railroad.
2. MDOT evaluate the feasibility of moving the Intercity/Amtrak intermodal facility to the east side of Harrison Avenue, on MSU property. We believe that by locating this facility on the east side of Harrison Avenue, traffic flow, safety and access by buses and the general public will be improved. This change will also help maintain the City's existing tax base.
3. An evaluation be undertaken to assess the consequences of the loss in

Mr. Kip Grimes
April 27, 1994
Page Two

parking caused by construction of the proposed MSU/CATA bus transfer facility; and that a plan be developed to mitigate the negative effects of this change.

4. CATA and MSU investigate the feasibility of providing direct CATA bus service to the MSU library.

5. CATA study the potential for developing a "park and ride" system utilizing outlying area parking lots, including ways to market this type of system.

Please feel free to contact this office if there are any questions or if further clarification is needed regarding the above items.

The City of East Lansing wishes to express its appreciation for all the time and effort given by you and the Study Committee in developing the transit recommendations. We look forward to working with you in the coming months on the finalization of plans for this important project.

Sincerely,



Peter G. Eberz, Group Manager
Public Works/Environmental Services

c Tom Dority, City Manager

Appendix 1-1

Listing of Project Policy

and

Technical Committee Membership

APPENDIX 1-1

LISTING OF PROJECT POLICY AND TECHNICAL COMMITTEE MEMBERSHIP

Lansing Transit Coordination Study

Policy Committee Membership:

Ms. Janet D'Ignazio
Assistant Deputy Director
Bureau of Urban and Public Transportation
Michigan Department of Transportation
425 West Ottawa Street
Lansing, Michigan 48909
(517) 373-2834

Ms. Sandra Draggoo
Executive Director
Capital Area Transportation Authority
4615 Tranter Avenue
Lansing, Michigan 48910
(517) 394-1000

Mr. Gene Garrison
Manager, Automotive Services
Central Services Building, N.W.
Michigan State University
East Lansing, Michigan 48824-1001
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Technical Advisory Committee:

Mr. Mark R. Fedorowicz
Manager of Service Development
Capital Area Transportation Authority
4615 Tranter Avenue
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(517) 394-1100

Mr. David Smith
Operations Manager
Capital Area Transportation Authority
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Mr. Thomas W. Kehler
Director
Division of Campus Park and Planning
Michigan State University
412 Olds Hall
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Mr. Gordon Mackay
President
Indian Trails Bus Lines
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Owosso, MI 48867
(517) 482-2334

Dr. Kazuya Fujita, PhD
(Capital Area Rail Council)
Department of Geological Sciences
Michigan State University
P.O. Box 61
East Lansing, MI 48823-0061
(517) 355-0142

Mr. Ted Craig
AMTRAK
501 East Michigan Avenue
Jackson, MI 49201
(517) 787-6385

Mr. Dan Otto
Director of Planning & Development
Capital Region Airport Authority
4100 Capital City Boulevard
Lansing, MI 48906
(517) 886-3716

Mr. Paul Hamilton
Chief Transportation Planner
Tri-County Regional Planning Commission
913 West Holmes Street, Suite 201
Lansing, MI 48910
(517) 393-0342

Mr. John Matuszak, P.E.
City Engineer
City of East Lansing
410 Abbott Road
East Lansing, MI 48823
(517) 337-9459

Mr. Robert Owen, Director
Department of Planning and Community
Development
City of East Lansing
410 Abbott Road
East Lansing, MI 48823
(517) 337-1731

Mr. Tim Therrian
Customer Service Manager
Greyhound Lines, Inc.
310 West Grand River Avenue
East Lansing, MI 48823
(517) 332-2569

Technical Advisory Committee: (Cont'd)

Mr. Robert D'Alcorn
Managing Director
Ingham County Road Commission
P.O. Box 38
Mason, MI 48854
(517) 676-9722

Mr. William V. Pabst
Lakefront Trailways
836 Greenridge Road
Worthington, Ohio 43085
(614) 885-1624

Mr. David Phillips
Customer Service Manager
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1001 Howard Street
Detroit, MI 48226
(313) 961-9817

Ms. Cynthia Bewersdorff
President
Yellow Cab Company
229 South Cedar Street
Lansing, MI 48912
(517) 482-1444

Mr. Harold Halstead
President
Spartan Cab Company
2401 West Main Street
Lansing, MI 48917
(517) 485-4400

Mr. Charles (Chuck) Ingalls
Director
Design and Construction Division
Greyhound Lines, Inc.
P. O. Box 660362
Dallas, Texas 75266-0362
(214) 698-4650

Mr. David Berridge
City Transportation Engineer
Lansing Department of Transportation
219 North Grand Street
Lansing, MI 48933
(517) 483-4240

Appendix 4-1

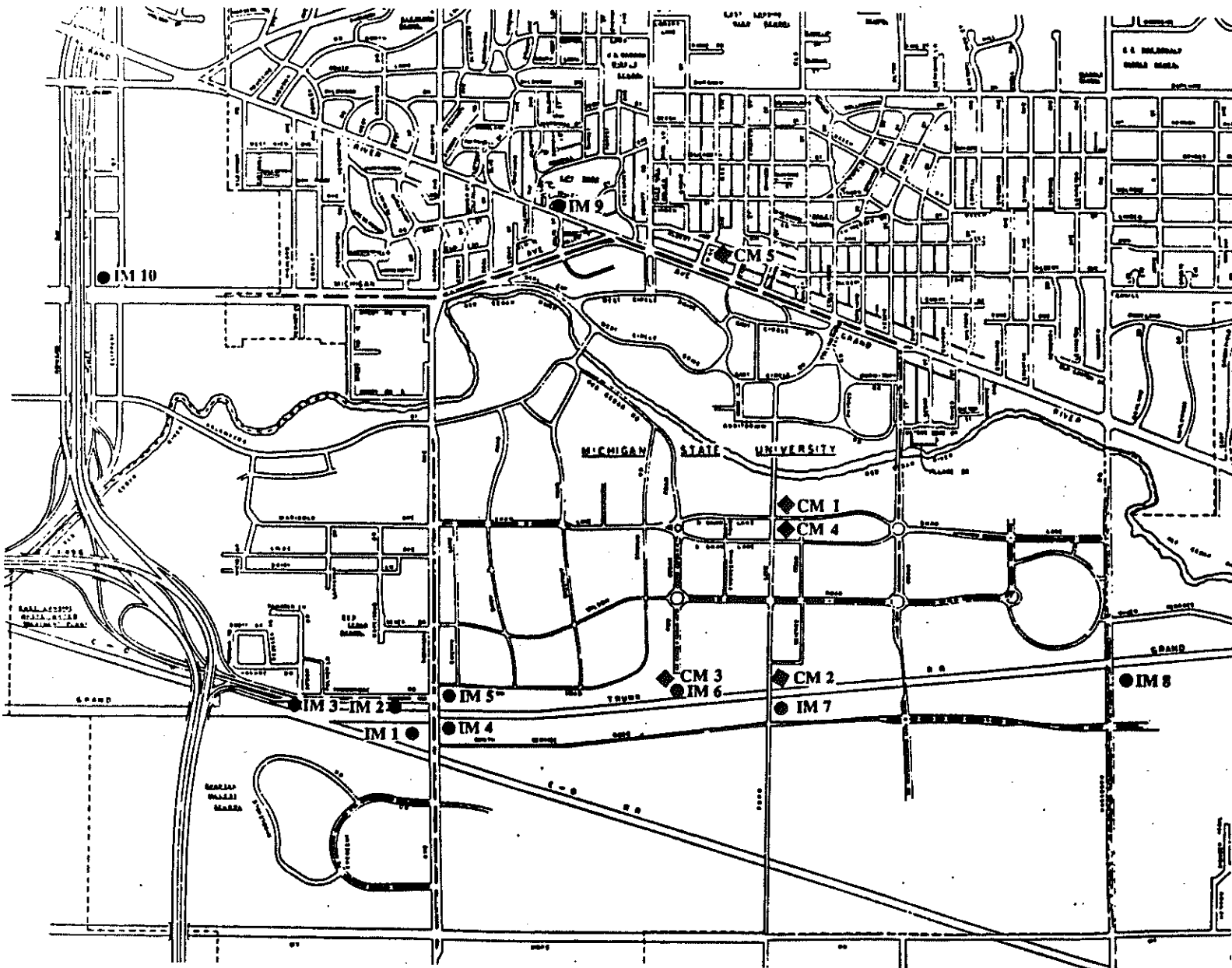
DESCRIPTION OF ALTERNATIVE TERMINAL SITES

- CATA/MSU Transfer Center
- Intercity Terminal Facilities

PRELIMINARY SITE REVIEW

Potential Sites:

- ◆ CATA / MSU Transfer Center (CM)
- Intermodal Transfer Facility (IM)



1 October 1993

**Prototypical Site Development Program
MINIMUM SITE SIZE REQUIREMENT**

CATA/MSU TRANSFER CENTER

BUILDING PROGRAM

	NET AREA (Sq. Ft.)	NET SUB-TOTALS	GROSS TOTALS
A Public Areas			2,450
1 Enclosed Lobby and Waiting Area	1,200		
2 Public Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newsstand, gift shop, etc.)	500		
6 US Postal Service Self Service Center	150		
B CATA Sales and Distribution Area			500
1 Counter and Work Area	250		
2 Office	250		
C MSU Sales and Distribution Area			500
1 Counter and Work Area	250		
2 Office	250		
D Driver Break Areas			400
1 MSU	200		
2 CATA	200		
E MSU Bus System Administrative and Operational Offices			2,825
1 Office Areas (10 offices at an average 150sf.)	1,500		
2 Reception Area	175		
3 Meeting Area	300		
4 Work and Storage Areas (40% office area)	600		
5 Restrooms	250		
F Maintenance Area			250
1 Janitorial	100		
2 Grounds	150		
G Circulation/Mechanical (33%)			2,285
TOTAL GROSS BUILDING AREA			9,210

SITE PROGRAM

A Cata Bus Boarding Bays, 2-3 Buses (2000sf. each)	6,000		
B MSU Bus Boarding Bays, 4-5 Buses (2000sf. each)	10,000		
C Short Term Parking, 15-20 Spaces (500sf. each)	10,000		
D Employee Parking, 10-15 Spaces (500sf. each)	7,500		
E Taxi/Shuttle Service Area	2,500		
Sub-Total			36,000
F Site Circulation, 20%	7,200		
G Landscape and Setbacks, 20%	7,200		
H Building Area	9,210		
TOTAL SITE AREA, Square Feet			59,610
TOTAL SITE AREA, Acres			1.37

Preliminary Site Review
PHYSICAL EVALUATION

CATA / MSU TRANSFER CENTER**SITE #1**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #1 is located at the northeast corner of Farm Lane and westbound Shaw Lane. It is at the geographical center of the main MSU campus, approximately 7/10 of a mile from downtown East Lansing. The site is well located to serve both the MSU Campus and downtown East Lansing.
- DESCRIPTION:** The site is bounded by the Red Cedar River (north), Shaw Hall (east), westbound Shaw Lane (south), and Farm Lane (west). It slopes severely to the northeast, from the corner of Farm Lane to the Red Cedar River. The present bus parking and access road is a full story below the intersection of Farm and Shaw.
- CURRENT USE:** The site is the present location of the central campus bus system transfer stop. A faculty and staff parking lot is also located on the site.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. It is our understanding that MSU would make the site available for a CATA/MSU Transfer Center.
- SIZE/
CONFIGURATION:** The site is pie shaped, with approximately 350ft of frontage on both Farm and Shaw lanes. It is approximately 1.41 acres in size.
- SITE VISIBILITY:** Located at the geographical center of the main campus and at the corner of Shaw and Farm Lanes, the site is one of, if not *the*, most highly visible sites on campus. A high volume of both vehicular and pedestrian traffic pass the site each day.
- PEDESTRIAN/
BICYCLE ACCESS:** Site #1 is at the hub of on campus pedestrian and bicycle routes. East-west pedestrian and bicycle routes follow the Red Cedar River and converge at Farm Lane at the site. Campus services, such as the International Center, are also located in this area, as is a large amount of campus and visitor parking.
- VEHICULAR ACCESS:** Shaw Lane is the principal east-west campus vehicular circulation route and Farm Lane is the principal north-south route. The site is, therefore, ideally situated for on-campus vehicular circulation. In addition the largest concentration of on campus parking is located in the Shaw Lane 'corridor,' within a 1/4 mile of the site. Access to the site is off both Shaw and Farm Lanes.
- BUS ACCESS:** As with vehicular circulation, the site is well suited for bus access. Major east-west and north-south routes converge at the intersection of Shaw and Farm Lanes. Bus access to the site is made somewhat difficult by the divided one-way pair at Shaw Lane. Southbound traffic on Farm Lane and eastbound traffic on Shaw Lane, wishing to access the site, must circle in front of the Planetarium, across the Shaw Lane median, to access the site. CATA bus access is somewhat difficult from Grand River Avenue. However, access from Harrison (west) or Hagadorn (east), along Shaw Lane, is convenient.

Preliminary Site Review
PHYSICAL EVALUATION

CATA/MSU TRANSFER CENTER****SITE #2**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #2 is located on the southeast corner of the intersection of Farm Lane and the GTW tracks. Like Site #3, the site is on the central, southern edge of the main campus. It is approximately one mile south of downtown East Lansing.
- DESCRIPTION:** The site is bounded by the GTW tracks (north), the Clarence E. Lewis Landscape Arboretum (east), Service Road (south), and Farm Lane (west). In fact, the site is the western end of the arboretum.
- CURRENT USE:** The site is vacant of buildings, but is the western portion of the Clarence E. Lewis Landscape Arboretum.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. Its availability as a site for an intermodal facility is undetermined at this time.
- SIZE/
CONFIGURATION:** The site is rectangular in shape. It has approximately 300ft of frontage along Farm Lane and potentially more frontage along Service Road. Approximately 3.80 acres could potentially be made available for the site of an intermodal facility.
- SITE VISIBILITY:** Despite the fact that the site has frontage on Farm Lane (the main north-south campus circulation artery), it is not highly visible. The site is somewhat removed from the center of campus and South Farm Lane is principally a commuter entry to the campus.
- PEDESTRIAN/
BICYCLE ACCESS:** The main part of campus has traditionally been considered to be the area north of the GTW tracks. The site is located south of the tracks and is, therefore, not on the main vehicular, pedestrian, or bicycle routes. However, the central location of the site, relative to campus, makes it fairly easily accessible to campus residents. The site is not easily accessible from downtown East Lansing or its surrounding neighborhoods.
- VEHICULAR ACCESS:** The site is conveniently accessible, locally, via Farm Lane or Service Road. However, traffic on Farm Lane must cross either the GTW tracks or the C&O tracks. Regionally, access from the freeway system is more difficult. Traffic from the Trowbridge interchange, using Service Road, is required to cross the GTW tracks on Harrison road.
- BUS ACCESS:** The principal concern regarding bus access to the site is the fact that both GTW and C&O tracks must be crossed to access the site. Otherwise, the site is easily accessible from Harrison or Hagadorn roads.

**** Site #2 is also a potential location for a Intermodal Transfer Facility. It is assumed that, if both facilities were to be located at this site, it would be a joint facility, combining intermodal and CATA/MSU transfer operations.**

Preliminary Site Review
PHYSICAL EVALUATION

CATA/MSU TRANSFER CENTER****SITE #3**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #3 is located on the MSU campus at the southern end of Red Cedar Road. It lies between the MSU Communication Arts and Sciences parking area, on the north, and the GTW tracks, to the south. The site is located on the central, southern edge of the main campus. It is approximately one mile from downtown East Lansing.
- DESCRIPTION:** The site is vacant land bounded by The Communication Arts Building parking area (north), vacant land behind the Natural Resources Building (east), the GTW tracks (south), and the proposed Trowbridge Road extension (west).
- CURRENT USE:** Site #3 is presently vacant but is part of the planned Trowbridge extension. Trowbridge is to be extended from Harrison Road to the east, paralleling the GTW tracks (to the south), and connecting to Red Cedar Road where it presently ends, south of the Public Safety building.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. Its availability for an intermodal facility is undetermined at this time.
- SIZE/
CONFIGURATION:** The site is roughly rectangular. It is approximately 350ft (N-S) by 500ft (E-W), or 4.01 acres.
- SITE VISIBILITY:** Should the Trowbridge Road extension be constructed, the site would be highly visible on this major entry to the university. If not constructed, the site would have very little visibility.
- PEDESTRIAN/
BICYCLE ACCESS:** The site would be conveniently accessible for most campus residents. However, the site is not heavily traveled pedestrian or bicycle routes. It is remote from downtown East Lansing and most neighborhoods.
- VEHICULAR ACCESS:** With the extension of Trowbridge Road, the site would be easily accessible, both locally and regionally. Access from I-496 and US-127 along Trowbridge, and locally from Harrison is easy and direct. Access to the site from the east would be more difficult, requiring crossing campus.
- BUS ACCESS:** Like vehicular traffic in general, the site would be easily accessible by bus. There is sufficient site area to accommodate bus circulation on site and the construction of the Trowbridge extension should handle bus traffic without difficulty.

**** Site #3 is also a potential location for an Intermodal Transfer Facility. It is assumed that, if both facilities were to be located at this site, it would be a joint facility, combining intermodal and CATA/MSU transfer operations.**

Preliminary Site Review
PHYSICAL EVALUATION

CATA / MSU TRANSFER CENTER***SITE #4**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #4 is located on the east side of Farm Lane, between eastbound and westbound Shaw Lane. Similar to Site #1, the site is at the geographical center of the MSU campus. The site is well located to serve both the MSU Campus and downtown East Lansing.
- DESCRIPTION:** The site is bounded by westbound Shaw Lane (north), the Planetarium and its access drive (east), eastbound Shaw Lane (south), and Farm Lane (west). The site is essentially flat. It is the present site of a faculty and staff parking area which is ringed with mature canopy trees.
- CURRENT USE:** The site is currently a faculty and staff parking lot. It also provides access and drop-off for the planetarium.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. It is our understanding that the site would be available as the site for a CATA/MSU Transfer Center.
- SIZE/
CONFIGURATION:** The site is rectangular with approximately 225ft of frontage on Farm Lane and 300ft of frontage on both eastbound and westbound Shaw Lane. The usable site area is approximately 1.55 acres.
- SITE VISIBILITY:** Similar to Site #1, the site is highly visible. It has prominent exposure on Farm Lane and on both eastbound and westbound Shaw Lane.
- PEDESTRIAN/
BICYCLE ACCESS:** The site is at the hub of on campus pedestrian and bicycle routes. East-west pedestrian and bicycle routes follow the Red Cedar River and converge at Farm Lane at the site. Campus services, such as the International Center, are also located in this area, as is a large amount of campus and visitor parking.
- VEHICULAR ACCESS:** Shaw Lane is the principal east-west campus vehicular circulation route and Farm Lane is the principal north-south route. The site is, therefore, ideally situated for on-campus vehicular circulation. In addition the largest concentration of on-campus parking is located in the Shaw Lane corridor, within a 1/4 mile of the site. Although access to the site is currently off the Planetarium service drive, access is possible off both eastbound and westbound Shaw Lane.
- BUS ACCESS:** As with vehicular circulation, the site is well suited for bus access. Major east-west and north-south routes converge at the intersection of Shaw and Farm Lanes. Bus access to the site is facilitated by the site's location in the 'median' between eastbound and westbound Shaw Lane. CATA bus access is somewhat difficult from Grand River Avenue. However, access from Harrison (west) or Hagadorn (east), along Shaw Lane, is convenient.

* Site #4 was proposed as the site of a South Campus Transit Center in the "Campus Parking and Transportation Study," October 1989.

Preliminary Site Review
PHYSICAL EVALUATION

CATA/MSU TRANSFER CENTER**SITE #5**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #5 is located on the south side of Albert Avenue, between MAC Avenue and Charles Street, in downtown East Lansing. The site is located in central downtown East Lansing. It is located one block off Grand River and just across Grand River from the MSU campus. Geographically, it is located very near the center of the East Lansing/MSU community.
- DESCRIPTION:** The site is located in the public right-of-way along the north side of the public parking deck. Currently, buses pull-off and park along the length of the block and a waiting area is provided along the north side of the parking deck.
- CURRENT USE:** The site is the current location of a CATA transfer stop.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by the City of East Lansing and is part of the public parking deck site and adjacent Albert Street right-of-way.
- SIZE/
CONFIGURATION:** The site is linear. It is essentially the area between the public parking deck and Albert Street. Expansion of the site is not possible.
- SITE VISIBILITY:** Located one block off Grand River Avenue, behind the Public Parking Deck, the site is not highly visible. Because the site is centrally located in downtown, it is easily found and easily accessible, but it is not located on a major thoroughfare.
- PEDESTRIAN/
BICYCLE ACCESS:** Because the site is centrally located in the community, pedestrian and bicycle access is convenient within the downtown area, the surrounding neighborhoods, and a good portion of the MSU campus.
- VEHICULAR ACCESS:** The site is easily accessible by vehicle locally, since it is located only one block off Grand River Avenue. It is, however, somewhat remote from freeways. Regionally, it is approximately 1.7 miles east of US-127.
- BUS ACCESS:** The site is presently designed to circulate buses counter clockwise around the block and provides pull-off parking for buses along Albert Street. Located one block off Grand River, the site is easily accessible from local bus lines. However, it is remote from freeways.

Prototypical Site Development Program
MINIMUM SITE SIZE REQUIREMENT

INTERMODAL TRANSFER CENTER

BUILDING PROGRAM

From "East Lansing - Intermodal Passenger Terminal Site Analysis", June 1990.

	<i>NET AREA (Sq. Ft.)</i>	<i>NET SUB-TOTALS</i>	<i>GROSS TOTALS</i>
A Public Areas			2,250
1 Lobby and Seating (75 seats)	1,400		
2 Restrooms	400		
3 Lockers	50		
4 Vending Area	150		
5 Retail (newsstand, gift shop, etc.)	250		
B Bus Service Area			1,000
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
C Rail Service area			1,000
1 Counter and Work Area	250		
2 Freight	500		
3 Office	250		
D Maintenance Area			250
1 Janitorial	100		
2 Grounds	150		
E Circulation/Mechanical (33%)			1,500
TOTAL GROSS BUILDING AREA			6,000

SITE PROGRAM

A Bus Boarding Bays, 4-5 Buses (2000sf. each)	10,000		
B Boarding Platform for Rail Service	4,000		
C Short Term Parking, 15-20 Spaces (500sf. each)	10,000		
D Long Term Parking Spaces, 80-100 Spaces (500sf. ea)	50,000		
E Employee Parking, 10-15 Spaces (500sf. each)	7,500		
F Taxi/Shuttle Service Area	2,500		
Sub-Total		84,000	
G Site Circulation, 20%	16,800		
H Landscape and Setbacks, 20%	16,800		
I Building Area	6,000		
TOTAL SITE AREA, Square Feet			123,600
TOTAL SITE AREA, Acres			2.84

ALTERNATE #1

Long term parking is by far the largest site component at 1.15 acres.

The minimum site area could be reduced to approximately 1.75 acres if convenient off-site parking is provided.

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY***SITE #1**

DATE PREPARED: 1 October 1993

LOCATION: Site #1 is located on the west side of Harrison Road, just south of the Grand Trunk tracks and Trowbridge Road, between the Grand Trunk tracks and the Chesapeake and Ohio tracks. It is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area. It is approximately 1 1/2 miles from downtown East Lansing.

DESCRIPTION: Site #1 is triangular in shape and is bounded by Harrison Road (East), the C&O tracks (Southwest), and the GTW tracks (North). The site has approximately 350lf of frontage along Harrison Road. It is a relatively flat site, at grade with the adjacent tracks. Access is off Harrison Road.

CURRENT USE: The property is the site of the current AMTRAK station (serving the GTW tracks), well as the Michigan State University printing and salvage yard operations.

**SITE OWNERSHIP/
AVAILABILITY:** The property is owned by Michigan State University. Rights-of-way along the track are owned by the railroads. MSU has indicated that it is currently phasing out its operations on the site and is willing to discuss locating an intermodal facility there.

**SIZE/
CONFIGURATION:** The site has an approximate area of 4.02 acres. However, railroad rights-of-way, the Harrison Road right-of-way, and the required setbacks will significantly reduce the usable area of the site.

SITE VISIBILITY: The site is quite visible along Harrison Road, which it fronts. However, the more heavily traveled portion of Harrison Road and the commercial area is to the south of the site. Development regulations will require that any facility be set significantly back from Harrison Road, which will thus reduce its visibility.

**PEDESTRIAN /
BICYCLE ACCESS:** The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. The site is accessible by bicycle from campus and the downtown area.

VEHICULAR ACCESS: The site is easily accessible by vehicle either regionally, from I-496 or M127 via the Trowbridge Road exit or locally, from Harrison Road.

BUS ACCESS: As noted above, bus access is good. Buses can access the site from I-496 or M127 via the Trowbridge exit or from Harrison Road. A principal drawback to this location is that buses approaching the site from Trowbridge or from North Harrison must cross the GTW tracks just south of Trowbridge. This is a potential source of delay and may be unacceptable to the bus companies.

RAIL ACCESS:

Site #1 is ideally suited to provide service to either the GTW or the C&O tracks, both of which converge at the western end of the site.

- * *Site #1 was also evaluated as a potential site in the "East Lansing Intermodal Passenger Terminal Site Analysis," June 1980.*

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY****SITE #2**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #2 is located on the south side of Trowbridge Road, between Trowbridge and the GTW tracks. The site includes two separate, privately held parcels: 947, and 901 Trowbridge (There is the potential to acquire additional privately held sites to the west of 947 and 901). Site #1 is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area. It is approximately 1 1/2 miles from downtown East Lansing.
- DESCRIPTION:** The site is bounded by Trowbridge Road (north), Harrison Road (east), the GTW tracks (south), and adjacent commercial properties to the west.
- CURRENT USE:** The site is the location of two separate businesses: a Quality Dairy convenience store at 947, and another convenience store on the corner of Trowbridge and Harrison road at 901.
- SITE OWNERSHIP/
AVAILABILITY:** Each site is privately owned. The availability of the sites for use as an intermodal facility has not been determined, but it is assumed that the sites would be available for purchase.
- SIZE/
CONFIGURATION:** The site is rectangular. It is approximately 115ft deep by 400ft long, stretching from the corner of Trowbridge and Harrison Roads to just east of the property line of the MHSAA site. The area of the site is approximately 1.05 acres. This is significantly under the projected minimum site area of 2.84 acres. Additional property would have to be acquired to the west, or more likely, to the south should this site be selected.**
- SITE VISIBILITY:** The site has approximately 400ft of frontage on Trowbridge Road and 115ft of frontage on Harrison Road. It is perhaps the most visible of the sites in this area that have been considered for the intermodal facility.
- PEDESTRIAN /
BICYCLE ACCESS:** The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. The site is accessible by bicycle from campus and the downtown area.
- VEHICULAR ACCESS:** The site is easily accessible by vehicle either regionally from I-496 or M127 via the Trowbridge Road exit or locally from Harrison Road. Unlike Site #1, the GTW tracks need not be crossed to access the site.
- BUS ACCESS:** As noted above, bus access is good. Buses can access the site from I-496 or M127 via the Trowbridge exit or from Harrison Road. Access within the site is limited by its narrow width (115ft) and will likely cause some difficulty in site planning and design.**
- RAIL ACCESS:** Access to the GTW tracks, anywhere along the 400ft length of the site is possible. However, access cannot be provided to the C&O tracks unless additional property is purchased south of the tracks.**

**** The development of Site #2 has the potential to be expanded across the GTW tracks to the current AMTRAK site. Potentially, the development could have rail and bus components on separate sides of the tracks (rail to the south, bus to the north).**

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY***SITE #3**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #3 is located on the south side of Trowbridge Road, and is the westernmost site the commercial strip located between Trowbridge Road and the GTW tracks, located just east of the I-496, Trowbridge Road exit. The site is directly across Trowbridge from Arbor Drive. Similar to Sites #1 and #2, Site #3 is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area. It is approximately 1 1/2 miles from downtown East Lansing.
- DESCRIPTION:** The site is irregular in shape, relatively flat, with some scrub vegetation. It appears that a significant portion of the site has been filled over time. The site lies adjacent to the point at which the C&O and GTW tracks come closest together. It fronts Trowbridge, but it fronts the exit ramp from I-496 which is boulevarded, separating the east and west bound lanes.
- CURRENT USE:** Site #3 is undeveloped.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by the State of Michigan. It was purchased as a part of the I-496 right-of-way. It is assumed that MDOT would be amenable to the use of the site for an intermodal facility.
- SIZE/
CONFIGURATION:** The site has approximately 1.32 acres of usable area. It is approximately 115ft deep with 500ft of frontage along Trowbridge Road. The site tapers, following the GTW tracks to the west. It is significantly under the minimum site area of 2.84 acres. Additional property would have to be acquired to the east of the site. This property is currently relatively newly developed commercial property.
- SITE VISIBILITY:** Despite the fact that the site has excellent frontage on Trowbridge, it is not highly visible because of its location adjacent to the exit ramp at the extreme west end of Trowbridge. The only vehicles passing the site are those either entering or exiting I-496.
- PEDESTRIAN/
BICYCLE ACCESS:** The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. Bicycle access is difficult along Trowbridge.
- VEHICULAR ACCESS:** The site is conveniently located just off the I-496 interchange and close to Harrison road. However, because the site is so far west on Trowbridge, and adjacent to the exit ramp, the boulevard makes entry to the site difficult. The site will have to be entered and exited from the extreme east end, requiring vehicle 'turn-around' on site.
- BUS ACCESS:** Bus access is convenient from both I-496 and Harrison. However, site entry/exit turning movements will be difficult because of the boulevard and the entering and exiting traffic from the interchange.

RAIL ACCESS:

Site #3 is one of only two prospective sites to offer access to both the GTW and the C&O tracks. On site access to the GTW tracks is convenient, but access to the C&O tracks is more difficult. Passengers using the C&O tracks will have to cross the GTW tracks. Both tracks are, however, are in close proximity to the site.

- * *Site #3 was also evaluated as a potential site in the "East Lansing Intermodal Passenger Terminal Site Analysis," June 1980.*

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY***SITE**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #4 is located on the east side of Harrison Road between the GTW tracks, to the North, and the C&O tracks, to the south. The site is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area. It is approximately 1 1/2 miles from downtown East Lansing.
- DESCRIPTION:** The site is bounded by Harrison Road (west), the GTW tracks (north), MSU Housing Purchasing and University Services facilities (east), and the C&O tracks (south). It is located between the MSU facilities and Harrison Road. The site is essentially flat and is mostly lawn maintained by the MSU. Service Road bisects the site, splitting it into north and south halves.
- CURRENT USE:** Currently the site is vacant.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. Its availability for use as an intermodal facility site is undetermined at this time.
- SIZE/
CONFIGURATION:** The site is roughly rectangular in shape, with the south side following the angle of the C&O tracks. The site has approximately 500ft of frontage along Harrison road and approximately 300ft deep. It is approximately 3.44 acres. The north half of the site (north of Service Road) is slightly larger than the southern half. The fact that the site is split by Service Road will have considerable bearing on its suitability, if both the GTW and the C&O tracks must be served. It appears unlikely that Service Road could be relocated, given that it is the primary access for MSU Housing/Purchasing and University Services.
- SITE VISIBILITY:** Site #4 is not highly visible, as it is located south of the Trowbridge/Harrison intersection. However, it is easily located and does have good exposure on Harrison.
- PEDESTRIAN/
BICYCLE ACCESS:** The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. Bicycle access is convenient. The fact that the site is south of the GTW tracks makes pedestrian and bicycle access more difficult.
- VEHICULAR ACCESS:** The site is easily accessible by vehicle either regionally from I-496 or M127 via the Trowbridge Road exit or locally from Harrison Road. Site access would have to be on Service Road (rather than creating new site access points on Harrison) due both to the center median on Harrison and to the short distance between Trowbridge and Service Road.
- BUS ACCESS:** Buses can access the site from I-496 or M127 via the Trowbridge exit or from Harrison Road. A principal drawback to the location is that buses approaching the site from Trowbridge or from North Harrison must cross the GTW tracks just south of Trowbridge. This is a potential source of delay and may be unacceptable to the bus companies.

RAIL ACCESS:

The site stretches from the GTW tracks, on the north, to the C&O tracks on the south. However, the distance between the tracks is approximately 350ft, a difficult distance to manage. In addition, Service Road bisects the site, requiring that it be crossed no matter on which half of the site a new facility is located.

* Site #4 was also evaluated as a potential site in the "East Lansing Intermodal Passenger Terminal Site Analysis," June 1980.

**Preliminary Site Review
PHYSICAL EVALUATION**

INTERMODAL TRANSFER FACILITY

***SITE #5**

DATE PREPARED:	1 October 1993
LOCATION:	Site #5 is located directly east of the intersection of Trowbridge and Harrison Roads on the MSU campus. Like the previous four sites, Site #5 is located on the western edge of the MSU campus, adjacent to the Trowbridge Road commercial area; the only difference is that the site is the main campus side of Harrison Road. It is approximately 1 1/2 miles from downtown East Lansing.
DESCRIPTION:	The site is bounded by Harrison Road (west), Stadium Road (north), vacant lands (east), and the GTW tracks (south). The site is relatively flat and is mostly lawn maintained by the MSU.
CURRENT USE:	The site is currently vacant. However, it will be part of the proposed "Trowbridge Extension," and is proposed as the site of a new campus entry and visitor center.
SITE OWNERSHIP/ AVAILABILITY:	The site is owned by MSU and is part of the main campus. It has been considered as a potential site for an intermodal facility. Preliminary discussions with representative of MSU suggest that it is unlikely that the site would be made available for such use, particularly with the recent approval of the Trowbridge extension.
SIZE/ CONFIGURATION:	The site is roughly rectangular, approximately 300ft by 350ft. It is defined on the west, north and south but not on the east. At approximately 2.41 acres, the site would have to be expanded slightly to the east to be of suitable size for an intermodal facility.
SITE VISIBILITY:	Many visitors to the MSU campus and to the East Lansing area enter using Trowbridge Road. The site is prominently located for high visibility from both Trowbridge and Harrison Roads.
PEDESTRIAN/ BICYCLE ACCESS:	The site is on the periphery of the campus, which will require a significant walk for some students and faculty. Its distance from downtown East Lansing would likely prohibit walking. Bicycle access is convenient.
VEHICULAR ACCESS:	The site is easily accessible by vehicle either regionally from I-496 or M127 via the Trowbridge Road exit or locally from Harrison Road.
BUS ACCESS:	As noted above, bus access is good. Busses can access the site from I-496 or M127 via the Trowbridge exit, from Harrison Road, or from the campus side of the site, if the Trowbridge extension is implemented.
RAIL ACCESS:	The GTW tracks are adjacent to the site on the south and would be easily accessible. The C&O tracks are located too far to the south of the site to be accessible.

* Site #5 was also evaluated as a potential site in the "East Lansing Intermodal Passenger Terminal Site Analysis," June 1980.

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY****SITE #6**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #6 is located on the MSU campus at the southern end of Red Cedar Road. It lies between the MSU Communication Arts and Sciences parking area, on the north, and the GTW tracks, on the south. It is located on the central, southern edge of the main campus. It is approximately one mile from downtown East Lansing.
- DESCRIPTION:** The site is vacant land bounded by The Communication Arts Building parking area (north), vacant land behind the Natural Resources Building (east), the GTW tracks (south), and the proposed Trowbridge Road extension (west).
- CURRENT USE:** The site is presently vacant, but, is part of the planned Trowbridge extension. Trowbridge is to be extended from Harrison Road, paralleling the GTW tracks (to the south), and connecting to Red Cedar Road where it presently ends, south of the Public Safety building.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. Its availability for an intermodal facility is undetermined at this time.
- SIZE/
CONFIGURATION:** The site is roughly rectangular. It is approximately 350ft (N-S) by 500ft. (E-W), or 4.01 acres.
- SITE VISIBILITY:** Should the Trowbridge Road extension be constructed, the site would be highly visible on this major entry to the university. If not constructed, the site would have very little visibility.
- PEDESTRIAN/
BICYCLE ACCESS:** The site would be conveniently accessible for most campus residents. It is remote from downtown East Lansing and most neighborhoods.
- VEHICULAR ACCESS:** With the extension of Trowbridge Road, the site would be easily accessible, both locally and regionally. Regional access from I-496 and US-127, along Trowbridge, and local access from Harrison are easy and direct. Access to the site from the east would be more difficult, requiring crossing campus.
- BUS ACCESS:** With the construction of the Trowbridge extension, the site would be easily accessible by bus. There is sufficient site area to accommodate bus circulation and the construction of the Trowbridge extension should handle bus traffic without difficulty.
- RAIL ACCESS:** GTW rail access is possible along the south edge of the site. However, there is a significant grade difference between the site and the tracks. This will have to be resolved during site planning. The site does not offer access to the C&O tracks.

**** Site #6 is also a potential location for an Intermodal Transfer Facility. It is assumed that, if both facilities were to be located at this site, it would be a joint facility, combining intermodal and CATA/MSU transfer operations.**

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY

****SITE #7**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #7 is located on the southeast corner of the intersection of Farm Lane and the GTW tracks. Like Site #6, the site is on the central, southern edge of the main campus. It is approximately one mile south of downtown East Lansing.
- DESCRIPTION:** The site is bounded by the GTW tracks (north), the Clarence E. Lewis Landscape Arboretum (east), Service Road (south), and Farm Lane (west). In fact, the site is the western end of the arboretum.
- CURRENT USE:** The site is vacant of buildings, but is the western portion of the Clarence E. Lewis Landscape Arboretum.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by MSU. Its availability as a site for an intermodal facility is undetermined at this time.
- SIZE/
CONFIGURATION:** The site is rectangular in shape. It has approximately 300ft of frontage along Farm Lane and potentially more frontage along Service Road. Approximately 3.80 acres are potentially available for the site of an intermodal facility.
- SITE VISIBILITY:** Despite the fact that the site has frontage on Farm Lane (the main north-south campus circulation artery), it is not highly visible. The site is somewhat removed from the center of campus and Farm Lane is not a principal campus entry.
- PEDESTRIAN/
BICYCLE ACCESS:** The main part of campus has traditionally been considered to be the area north of the GTW tracks. The site is located south of the tracks and is, therefore, not on the main vehicular, pedestrian, or bicycle routes. However, the central location of the site, relative to campus, makes it fairly easily accessible to campus residents. The site is not easily accessible from downtown East Lansing or its surrounding neighborhoods.
- VEHICULAR ACCESS:** The site is conveniently accessible locally via Farm Lane or Service Road. However, traffic on Farm Lane must cross either the GTW tracks or the C&O tracks. Regionally, access from the freeway system is more difficult. Traffic from the Trowbridge interchange, using Service Road, is required to cross the GTW tracks on Harrison road.
- BUS ACCESS:** The principal concern regarding bus access to the site is the fact that both GTW and C&O tracks must be crossed to access the site. This is potentially unacceptable to the bus companies due to the potential delays on their routes.
- RAIL ACCESS:** The GTW tracks are immediately adjacent to the site on the north. The C&O tracks are not accessible from this site. They are located approximately 4/10 of a mile south of the GTW tracks.

** Site #7 is also a potential location for a CATA/MSU Transfer Center. It is assumed that, if both facilities were to be located at this site, it would be a joint facility, combining intermodal and CATA/MSU transfer operations.

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY**SITE #8**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #8 is located on the east side of Hagadorn Road, between the GTW tracks and Service Road. It is on the western edge of the MSU campus, approximately 1.2 miles from downtown East Lansing.
- DESCRIPTION:** The site is bounded by the GTW tracks (north), Hagadorn Road (west), a newly developed restaurant and Service Road (south), and the Michigan Athletic Club property (east). The northern edge of the site is wooded along the GTW tracks.
- CURRENT USE:** The site was recently developed as a parking lot for the Michigan Athletic Club.
- SITE OWNERSHIP/
AVAILABILITY:** The site is privately owned. Its availability is undetermined at this time. It is assumed that should an intermodal transportation facility be developed on the site, the present parking would have to be replaced at another location.
- SIZE/
CONFIGURATION:** The site is rectangular with approximately 400ft of frontage on Hagadorn Road and 500ft along the GTW tracks. It is approximately 4.59 acres. Site access may have to be off Service Road rather than Hagadorn Road.
- SITE VISIBILITY:** The site has good visibility but its location on Hagadorn Road is remote from the center of campus. The new development along the eastern side of Hagadorn is large in size and would dwarf the relatively small transfer facility.
- PEDESTRIAN/
BICYCLE ACCESS:** The pedestrian access would be convenient for the eastern part of campus and the eastern East Lansing neighborhoods. The site is, however, remote from western East Lansing and campus. Bicycle access is generally convenient.
- VEHICULAR ACCESS:** Vehicular access is convenient. Hagadorn is a major local collector providing easy access from Grand River to the north, and Mt. Hope to the south.
- BUS ACCESS:** As with vehicular access, bus access is easy and convenient. However, a major drawback to the site is the fact that bus traffic, approaching the site from the north, must cross the GTW tracks. Bus traffic, approaching the site from the south, must cross the C&O tracks. This is potentially unacceptable to the bus companies.
- RAIL ACCESS:** The site borders the GTW tracks to the north. A significant grade difference between the site and the tracks would have to be resolved during site planning. The site does not serve the C&O tracks.

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY**SITE #9**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #9 is located at the northeast corner of Grand River Avenue and Valley Court, just west of downtown East Lansing. It is located two blocks west of the intersection of Abbott Road and Grand River Avenue. This is northwest of the MSU campus, approximately 1 mile from the center of campus.
- DESCRIPTION:** The site is the former location of a Dairy Queen. The building has been adapted for use as a terminal building and the existing parking area serves as bus parking, loading, and short term parking.
- CURRENT USE:** The site is the current location of the combined Indian Trails and Greyhound bus station.
- SITE OWNERSHIP/
AVAILABILITY:** The site is owned by the bus companies. It is assumed that the site would be available for use as an intermodal facility.
- SIZE/
CONFIGURATION:** The site is small in comparison to other sites under consideration at less than an acre. It is located at the corner of Grand River and Valley Court and is roughly pie shaped. Access is currently off both Valley Court and Grand River.
- SITE VISIBILITY:** The site has approximately 80ft of frontage on Grand River Avenue and, thus, has good visibility. The site is, however, west of the intersection of Grand River and Michigan Avenues and is less traveled, and less visible, than it might otherwise be.
- PEDESTRIAN/
BICYCLE ACCESS:** Pedestrian and bicycle access from the downtown area and the surrounding neighborhoods is convenient. It is also convenient for MSU students in the northwest part of campus, but is remote from a large part of the campus.
- VEHICULAR ACCESS:** The site is easily accessible locally by vehicle, due to its location on Grand River Avenue and proximity to the intersection of Grand River and Michigan Avenues. It is, however, remote from the nearest freeway, US-127. Access to the site is possible from both Grand River and from Valley Court.
- BUS ACCESS:** Site #9 is conveniently accessible locally, via Grand River Avenue, which is only one block north of Michigan. Regionally it is remote from freeways. The site is approximately 1.2 miles east of the nearest freeway interchange at Grand River and US-127.
- RAIL ACCESS:** The site is remote from any rail line. Rail passengers would have to be shuttled from any facility at this site to a rail facility. This is a major drawback to this site and potentially unacceptable.

Preliminary Site Review
PHYSICAL EVALUATION

INTERMODAL TRANSFER FACILITY**SITE #10**

- DATE PREPARED:** 1 October 1993
- LOCATION:** Site #10 is located at the northeast corner of East Michigan Avenue and Homer Street. Just to the west of and parallel to Homer Street is US-127. The site is in the city of Lansing on the southwest corner of the superblock that contains the Frandor Shopping Center. It is northwest of the MSU campus, approximately 2 miles from the center of campus.
- DESCRIPTION:** The site is a former car dealership. An existing one story building with a footprint of 21,887sf is located at the southwest corner of the site, touching both the south and west property lines. The remainder of the site is paved parking.
- CURRENT USE:** The site is currently used for a retail mattress business.
- SITE OWNERSHIP/
AVAILABILITY:** The property is currently offered for sale and is listed with a real estate company, Gentilozzi Real Estate, Inc.
- SIZE/
CONFIGURATION:** The site is 1.84 acres in size and is L-shaped. Access is currently off East Michigan Avenue along the south, Homer Street along the west (which is one way northbound), and Clippert Street along the east. The East Michigan Avenue access is off the westbound lanes of the boulevard. Eastbound traffic on Michigan Avenue can turn directly onto Clippert Street.
- SITE VISIBILITY:** The site is highly visible, being situated on a major thoroughfare and adjacent to US-127. The site has approximately 300ft of frontage along East Michigan Avenue, 350ft of frontage along Homer Street, and 190ft of frontage along Clippert Street.
- PEDESTRIAN/
BICYCLE ACCESS:** Pedestrian and bicycle access to the site is not convenient to MSU students or to the neighborhoods adjacent to campus. It is remote from all but the far northwest part of campus and separated from East Lansing by the shopping center.
- VEHICULAR ACCESS:** The site is easily accessible by local traffic and is easily accessible from US-127.
- BUS ACCESS:** The site is directly accessible from East Michigan Avenue and easily accessible from Grand River Avenue approximately 1/2 mile to the north. Access off US-127 is convenient for both northbound and southbound traffic. For this site to serve as a CATA/MSU transfer site, however, a shuttle would be required between this site and an on campus location since it is too remote for pedestrian access. The other option would be one of having an MSU bus route to service the site.
- RAIL ACCESS:** The site is remote from any rail line. Rail passengers would have to be shuttled from any facility at this site to a rail facility. This is a major drawback to this site and potentially unacceptable.

Appendix 6-1

University Survey Questionnaire

Michigan Department of Transportation

SURVEY OF UNIVERSITY/PUBLIC TRANSIT RELATIONSHIPS

Please answer the following questions concerning your campus bus/transportation system, the public transit system, and your university parking and transportation systems. *The survey will ask you for a contact you work with in the public transit agency, so if there are questions you cannot answer but you think the contact can, please indicate this.* If a question is not appropriate or applicable for your situation, please mark the response "NA". If more room is needed, please write in the margin or on another piece of paper, rather than the back of the survey. (We are asking you to return the completed survey by faxing it back.)

To fax your response, please send to CMA at fax number 215-545-2330.

To mail your response, send to
CHANCE MANAGEMENT ADVISORS, INC.
1520 Locust Street
Philadelphia, PA 19102

If you have any questions about the survey, please call Joe Corradino of CMA at 215-545-2520.

If you would like to talk to MDOT about the survey, you can call Mr. Kip Grimes at 517-373-7645.

Thank you for your time and help.

SECTION I. BASIC INFORMATION

1. What is the campus population (in full-time equivalent numbers)?

_____ undergraduate students,
_____ graduate students,
_____ staff,
_____ faculty,
_____ other (_____).

See Table

2. What is the percentage of students that live on campus? undergraduate _____ % graduate _____ %

See Summary

3. Do you have a Medical Center and/or hospital affiliated with your campus? 8__yes 7__no 1__n/a

4. If yes, what are the medical center population characteristics?

_____ physicians,
_____ nurses,
_____ staff,
_____ visiting physicians,
_____ other (please specify) _____
_____ in-patient beds,
_____ emergency treatments per year,
_____ outpatient treatments per year.

See Summary

SECTION II. UNIVERSITY TRANSPORTATION

1. Please describe the nature of your university's transportation (bus or shuttle) system:

a. Management:

- 11__ University manages its own transportation system
3__ Public transit system manages the campus transportation system
0__ There is a regional transportation authority that manages all transit
2__ Other (please specify) _____
1__ n/a

b. Operations:

- 11__ University operates the campus transportation system (drives buses, does maintenance, establishes routes, etc.)
3__ University pays the public transit system to operate the transportation system
3__ University pays another entity to operate the transportation system
(please name the other entity) _____
1__ n/a

c. Relationship with Public Transit (check all that apply):

- 14__ Public transit regular routes run to/through the campus
8__ Public transit routes run to the campus, and the University transportation system circulates through and around the campus
8__ There are special public transit routes designed to serve the University
12__ Public transit and the University transportation system share transit stops
3__ Public transit and the University share facilities (e.g., transfer facility, maintenance shop)
2__ Other (please specify) _____
1__ n/a

2. How long has the University had a transportation system? _____ years

See Summary

3. How long has the University had the relationship with the public transit agency as described above?
_____ years, or _____ months

See Summary

4. What types of vehicles does the University use in its system?

- 12__ fixed route buses,
7__ demand response buses,
6__ shuttle bus,
3__ other (please specify) _____
3__ n/a

5. Does the University have a vanpool program? 6__ yes 8__ no 2__ n/a

6. Does the University have a carpool program? 9__ yes 4__ no 3__ n/a

7. What are the operating hours of the University transportation system?

Weekdays: _____ a.m. to _____ a.m. or p.m. (please indicate hours and circle appropriate period)
Weekends: _____ a.m. to _____ a.m. or p.m. (please indicate hours and circle appropriate period)

See Summary

Please indicate if these schedules are due to change at different times during the academic year.

10__yes 0__no 6__n/a

8. What is the approximate size of the area that the University transit system serves -- in square miles?

_____ square miles

See Table

9. What is the university organizational structure above transportation; e.g., what is the "chain of command"?
(please describe positions above your own, to the top of the University)

See Summary

10. Are the operations of parking and transportation in the same department? 10__yes 4__no

2__n/a

If no please explain:

11. How many employees work in the area of transportation? _____ full-time _____ part-time

See Summary

12. Is there a committee or work-group either University related or regional, responsible for assisting the campus in the use of alternative transportation modes?

5__yes 9__no 2__n/a _____ University _____ Regional

If yes, what is the title of this group?

13. What are its functions? (please describe) See Summary

14. How is the University transportation system funded? (Check all that apply.)

5__ General and educational funds

10__ Permits or passes sold to all who want to ride

9__ Student fees

10__ Subsidized by parking permit fees or fines

3__ Combination of sources (please list)

3__ Other (please specify)

1__ n/a

15. Do the funding mechanisms listed above cover both operating and capital costs?

12__yes 3__no 1__n/a

16. If no, what costs are not covered in this manner, and what other funding mechanisms are used?
These costs are not covered See Summary _____
Other funding includes See Summary _____

17. Is the University transportation system required to be financially self-supporting?
10__ yes 5__ no 1__ n/a
other (please describe) _____

18. Does the university transit system ever provide charters or special routes for the university; e.g., for sporting events, holidays, or other occasions? 12__ yes 2__ no 2__ n/a

19. Do the university transit routes serve the neighborhood areas where significant numbers of University-related people live? 7__ yes 7__ no 2__ n/a

20. Is the scheduling for these neighborhood routes designed to be compatible with peak class periods on campus?
7__ yes 2__ no 7__ n/a

21. What rates do various campus groups pay to ride the University transportation system buses?

\$ _____ per semester/quarter for faculty,
\$ _____ per semester/quarter for staff,
\$ _____ per semester/quarter for graduate students, See Summary
\$ _____ per semester/quarter for undergraduate students,
_____ no charge to any riders
_____ other (please explain) _____

22. What has the University done to comply with Americans with Disabilities Act (ADA) requirements for transportation for disabled individuals; e.g., do you have the facilities to handle handicapped access to buildings and buses? (please describe) See Summary _____

23. What is the typical headway for buses during the day? See Summary _____

24. How do the University transportation system and the public transit system coordinate services for handicapped individuals? (please describe) See Summary _____

SECTION III. RELATIONSHIP WITH PUBLIC TRANSIT

1. Who is your primary contact at the public transit agency? See Summary _____
Telephone number: _____

2. What is the approximate size of the area that the public transit system serves -- in square miles?
_____ square miles See Table

3. What percent of the total community population uses public transit regularly? _____% See Summary

4. Is the university service part of the regular community transit service? 5___yes 10___no 2___n/a
5. What is the total number of routes for the entire transit system? ___ routes **See Summary**
6. Of this number, how many routes serve the university area, and what is the typical headway?
 ___ routes ___ headway **See Summary**
7. Does the public transit system ever provide charters or special routes for the university; e.g., for sporting events, holidays, or other occasions? 9___yes 7___no
8. Do the public transit routes serve the neighborhood areas where significant numbers of University related people live? 15___yes 1___no
9. Is the scheduling for these neighborhood routes designed to be compatible with peak class periods on campus?
 7___yes 8___no 1___n/a
10. If the public transit routes do not come directly to campus, how do members of the University community reach their final destinations on campus?
 2___ campus shuttle
 1___ another public transit shuttle
 4___ walk
 2___ other (please explain) _____
 11___ n/a
11. Have members of the University population expressed interest in increasing or altering public transit routes to provide better service to the University area? 11___yes 3___no 2___n/a
12. What are the operating hours of the public transit system for routes related to the University?
 Weekdays: ___ a.m. to ___ a.m. or p.m. (please indicate hours and circle appropriate period)
 Weekends: ___ a.m. to ___ a.m. or p.m. (please indicate hours and circle appropriate period)
See Summary
 Do these schedules change according to changes in the academic year, if so, when?
 5___yes 5___no 6___n/a
13. Does a public transit pass allow ridership on any University transportation system routes?
 7___yes 9___no ___yes, with transfer for fee
 ___ other (please describe) _____
14. Does a University transportation pass (or ID) allow ridership on the public transit routes?
 7___yes 9___no ___yes, with transfer for fee
 ___ other (please describe) _____
15. What types of vehicles does the public transit system use in its system? (check all that apply)
 15___ city buses,
 2___ shuttle bus,
 2___ vanpools,
 2___ other (please specify) _____
 1___ n/a

16. Does the public transit agency have a "market rate" fee system (i.e., the longest ride is the most expensive and the shortest ride is the least expensive)? 13__yes 2__no 1__n/a
If no, how are fees established? (please explain) _____

17. Does the University contribute to public transit in any way? (check all that apply)

- 1__ the University pays for University-related transit routes
- 3__ the University contributes general funding to the transit system
- 3__ the University subsidizes fares for University personnel and/or students
- 1__ the University participates in the funding for shelters, transfer facilities, etc.
- 6__ the University does not contribute to the public transit system
- 2__ other (please describe) _____
- 3__ n/a

18. How is the public transit system funded? (Check all that apply)

- 16__ fares
- 8__ a local or regional tax
- 9__ local general funds
- 12__ State funds
- 15__ Federal funds
- 1__ public/private relationships
- 1__ other (please describe) _____

19. What means does the transit system have to measure customer satisfaction? (For example, surveys handed out in stations or on vehicles, telephone interviews, etc.) (please list) See Summary _____

20. What level of satisfaction do University-related riders report?

- 5__ high
- 6__ average
- ____ below average
- ____ low
- 5__ n/a

21. Briefly, what is the history of the relationship between the University and public transit? For example, did the coordination of public transit and the University transportation system just begin? Has there been only minimal cooperation between the University and public transit? Please describe the most important historical points in the relationship.

See Summary _____

**SECTION IV.
RIDERSHIP CHARACTERISTICS**

University System Public System

- | | |
|---|--------------------------------|
| 1. How many passengers does the system carry during an average weekday? | _____ See Summary _____ |
| 2. What percent of each segment of the University population rides? | |
| student % | _____ See Summary _____ |
| staff % | _____ See Summary _____ |
| faculty % | _____ See Summary _____ |
| 3. Of the total ridership, what percent of riders are: | |
| university related % | _____ See Summary _____ |
| general public % | _____ See Summary _____ |
| 4. Passenger capacity per vehicle: | |
| fixed route bus | _____ See Summary _____ |
| demand response bus | _____ See Summary _____ |
| shuttle bus | _____ See Summary _____ |
| other | _____ See Summary _____ |
| 5. Total passengers carried per year | |
| fixed routebus | _____ See Summary _____ |
| demand response | _____ See Summary _____ |
| shuttle bus | _____ See Summary _____ |
| other | _____ See Summary _____ |

SECTION V. TRANSFER FACILITIES

1. Does the public transit system have one or more transfer facilities to serve the University area?
(Shared bus stops are not classified as transfer facilities)
 7 ___ yes 7 ___ no 2 ___ n/a If so how many? (#) _____

2. What transfers can be made at this facility or these facilities?

Transfer from (mode): _____ Transfer to (mode): _____

_____	_____
_____	_____
_____	_____
_____	_____

See Summary

3. Does the University transit system have one or more transfer facilities to serve the University area?

5 ___ yes 8 ___ no 3 ___ n/a If so how many? (#) _____

4. Is there a transfer facility located on campus? 5 ___ yes 9 ___ no 2 ___ n/a

5. Is it 1 ___ a building, 7 ___ a shelter, 1 ___ part of another facility, other (please describe)

8 ___ n/a

6. What is the estimated size, in square feet, of the transfer facility that serves the University area?

_____ square feet

See Summary

7. Are there any special amenities in the transfer facility (e.g., ticket window, food concession, newsstand, other public or university services)? (please specify)

See Summary _____

8. Does it have commuter parking spaces devoted specifically to transit-related use?

4 ___ yes 8 ___ no 4 ___ n/a _____ number of spaces

9. Approximately how many people use the transfer facility each day? _____ (number of people)

See Summary

10. What office or agency is responsible for operating the transfer facility? See Summary _____

11. What is the source of the operating funds? See Summary _____

12. What office or agency has responsibility for maintaining the transfer facilities? See Summary _____

13. What is the source of maintenance funds? See Summary _____

14. What office or agency is responsible for providing security at the transfer facilities? See Summary _____

15. What is the source of security funding? See Summary _____

16. How was the development (e.g., land acquisition, construction, etc.) of the facility funded? Were any University funds used in the development? See Summary _____

SECTION VI. INCENTIVES FOR USING TRANSIT

1. What incentives does the University provide to increase University-related ridership on public transit?
(please describe) See Summary _____

2. Does the transit agency provide incentives to promote ridership by the University-related population?
2 ___ yes 8 ___ no 6 ___ n/a
3. Are these incentives: 2 ___ special rates for specific groups (e.g., students)
(Check all that apply) 0 ___ reduced weekend rates
0 ___ free Sundays
1 ___ special event fares
0 ___ other (please describe) _____
14 ___ n/a
4. What are the parking rates on campus?
\$ _____ for faculty per month
\$ _____ for staff per month
\$ _____ for graduate students, teaching assistants, research assistants per month
\$ _____ for undergraduate students per month See Summary
\$ _____ other (please describe) _____
\$ _____ other (please describe) _____
\$ _____ other (please describe) _____
5. Are parking rates higher on campus than off-campus? 4 ___ yes 9 ___ no 3 ___ n/a
6. Are there any public relations efforts to discourage driving to campus and parking on campus?
7 ___ yes 6 ___ no 3 ___ n/a
7. Please explain what these efforts are. See Summary _____

8. Are there any segments of the University population that are prohibited from parking on campus?
9 ___ yes (please explain) _____
5 ___ no
2 ___ n/a
9. How many parking spaces are available on campus for all-day (as opposed to short-term visitor)
parking? _____ spaces See Summary
10. Does the University have remote parking lots? 11 ___ yes 4 ___ no 1 ___ n/a
11. Are shuttles provided to campus? 11 ___ yes 1 ___ no 4 ___ n/a
12. If yes, are the shuttles provided by the University or are they part of the public transit system?
10 ___ provided by the University
3 ___ part of the public transit system
4 ___ n/a

13. If no, how do riders get to campus from the remote lots? (*please describe*) See Summary _____

14. Does your campus have effective parking enforcement that discourages illegal or inappropriate parking?

13 ___ yes 2 ___ no 1 ___ n/a

SECTION VII. UNIVERSITY POLICIES

1. Does your campus have an overriding policy that governs parking and transportation activities? (For example, has your campus been established as a "pedestrian" campus, allowing vehicles only on the periphery?)

5 ___ yes, we have a policy 9 ___ no, we do not 2 ___ n/a

If yes, please state a summary of your policy. _____

2. Which individual, individuals, or committee is/are primarily responsible for determining transportation policy on your campus? See Summary _____

3. Does your campus have a parking and transportation master plan? 10 ___ yes 2 ___ no
4 ___ n/a

4. If yes, was it developed in conjunction with:

an overall facilities master plan 8 ___ yes 3 ___ no 5 ___ n/a

a local or regional transportation plan 3 ___ yes 5 ___ no 8 ___ n/a

5. Is your campus trying to reduce the number of single occupant vehicles and increase the use of alternative transportation? 12 ___ yes 3 ___ no 1 ___ n/a

6. What has been the most effective technique you have implemented to increase the use of transit? (*please describe*) See Summary _____

7. Does the university administration allow or promote flex-time, or flexible hours, for beginning and ending the work day? 12 ___ yes 3 ___ no 1 ___ n/a

8. Have there been any significant changes in either the parking or transportation systems on your campus within the last three years? 11 ___ yes 4 ___ no 1 ___ n/a

If yes, please describe. _____

9. Have there been any significant changes in the public transit system in the last three years that have had a significant impact on the University? 3 ___ yes 11 ___ no 2 ___ n/a

If yes, please describe. _____

10. Do federal, state, regional, and/or local environmental standards or requirements in any way contribute to the decisions your University makes for operating its transportation system?
 6 ___ yes 9 ___ no 1 ___ n/a
11. Has the way in which people arrive and depart the campus changed as a result of such regulations?
 0 ___ yes 12 ___ no 4 ___ n/a
 If yes, how have things changed? *(please describe)* _____

12. Are the environmental issues your campus has responded to concerned with (check all that apply):
 7 ___ clean air (the 1990 Clean Air Act Amendments or your state requirements)
 5 ___ traffic congestion regulations
 6 ___ requirements for open space
 4 ___ other *(please list)* _____
 5 ___ n/a
13. Have environmental requirements increased the University's cooperation and coordination with public transit? 3 ___ yes 10 ___ no 3 ___ n/a
 If yes, please describe how: _____

14. Do you expect an increase in campus population over the next ten years? 7 ___ yes 8 ___ no
 1 ___ n/a
15. How is the University planning to handle the transportation needs of the increased University-related population? (Check all that apply)
 10 ___ increase its own transportation services
 9 ___ increase its cooperative efforts with public transit
 3 ___ increase parking capacity and no change in transportation or transit
 0 ___ no planning is underway
 6 ___ other *(please describe)* _____
 4 ___ n/a
16. If there are plans to increase cooperative efforts with public transit, what are the activities that will be implemented? *(please list)* See Summary _____

17. If you have any other comments on University/public transit cooperation or coordination of activities, please write them here.
 See Summary _____

Thank you very much.

Please enclose copies of your transportation system maps.

Please fax your response to:

CHANCE MANAGEMENT ADVISORS, INC.

Joseph Corradino

FAX 215-545-2330

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