Parking Study

Cardinal IG & TC Campus
IG Plant Expansion

Prepared for:

Cardinal IG
4185 SW 13th Street
Ocala, Florida 34474

Contact: Tom Harkema
Phone: (352) 291-6850

Prepared by:
Sitts & Hill Engineers, Inc.
4815 Center Street
Tacoma, Washington 98409

Contact: Brent Leslie, P.E.
Phone: (253) 474-9449

June 2025
Revised July 2025
Job Number 20,833

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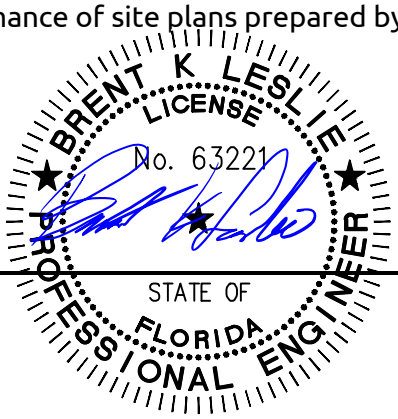
ENGINEER'S CERTIFICATION

I hereby state that this Parking Study has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Ocala does not and will not assume liability for the sufficiency, suitability, or performance of site plans prepared by me.



07-23-2025

Brent Leslie, P.E.
License No. 63221

Executive Summary

This report presents a parking study for the Cardinal IG campus, located at 4185 SW 13th Street, Ocala, Florida. The study supports a request for a reduction in the number of off-street parking stalls prescribed by Ocala Municipal Code Section 122-1016. This study and associated parking reduction request are triggered by a proposed expansion to the existing IG Plant that increases the floor area by 54,452 square feet but does not significantly increase staffing or parking demand. The expanded building footprint will primarily provide more space for new manufacturing equipment. No parking, beyond what has already been built or permitted, is needed by Cardinal and no new parking areas are proposed by the IG Plant Expansion project. Since the project is requesting a reduction to the required parking of more than 10%, this Parking Study has been prepared to satisfy Ocala Municipal Code 122-1016.

Upon completion of this project, 187 parking stalls (of the 205 existing stalls) will remain in place. This tally accounts for the 18 striped stalls that will be removed. Twenty one (21) additional stalls will be constructed under permit SITE25-0082, but these stalls have not been constructed at the time of this Study. When the proposed expansion is completed and the 21 additional stalls are constructed, there will be 208 stalls on the site.

Under Ocala Municipal Code, the proposed building addition would increase the code-required number of stalls on the campus to 272 stalls. This report demonstrates why the number of parking stalls in the proposed condition (187 stalls and 21 future stalls) will be sufficient, though less than the code's standard.

1 Existing Conditions & Site Permitting Summary

The Cardinal Campus consists of two buildings on a shared parcel: the Insulating Glass (IG) Plant and the Tech Center. The IG Plant was originally permitted in 2017 (SPL17-0030), and the Tech Center followed in 2020 (SPL20-0016). Since that time, two additional site permits—SPLM23-45292 and SITE25-0082—have been issued for minor site and circulation improvements. Other permitted tenant improvements have also occurred within both the IG Plant and the Tech Center. The total number of existing striped parking stalls provided on the site is **205 stalls**. The existing parking stalls consist of a paved and striped (painted) area, sized in accordance with OMC 122-1003 (each about 9.5' x 20'). Please see Appendix A for an overall site plan showing existing parking stall counts.

During past permitting applications, each project proposed parking areas sufficient to meet Cardinal's operational needs. The combination of existing parking, proposed parking, and areas identified for future parking were accepted as sufficient during previous permitting exercises by the City to meet parking compliance standards.

2 Proposed Conditions

Cardinal is proposing an expansion to their existing IG plant. The pre-planned plant expansion is proposed in an area currently comprised of asphalt paving and grass. Of the 205 existing striped stalls, 18 stalls will be removed in the expansion footprint, resulting in a total of 187 stalls (existing/to remain). Upon completion of the 21 stalls, permitted under SITE25-0082, there will be 208 stalls on the site.

3 Ocala Municipal Code and ITE Parking Standards

To align with the Ocala Municipal Code (OMC), this study provides an evaluation of code-required parking, which is based on use and floor area square footage. The following are requirements from the OMC that pertain to the Cardinal Campus. Please note that there are no showroom or retail uses – where the code alludes to these areas, they are not applicable to the Cardinal Campus.

Per OMC 122-1010 (17), Professional **Offices** shall provide one parking space for each 300 square feet of floor area.

Per OMC 122-1010 (22), **Manufacturing** facilities shall provide:

a) One space for each 750 square feet of gross floor area for the first 20,000 square feet devoted to manufacturing and related uses,
b) One space for each 2,000 square feet for the second 20,000 square feet,
c) One space for each 4,000 square feet for floor area in excess of 40,000 square feet

Per OMC 122-1010 (31), **Warehouse** facilities shall provide:

a) One space for each 1,000 square feet of gross floor area for the first 20,000 square feet devoted to warehousing,
b) One space for each 2,000 square feet for the second 20,000 square feet,
c) One space for each 4,000 square feet for floor area in excess of 40,000 square feet

Both existing and proposed conditions have been assessed, and a detailed calculation of the Ocala Municipal Code's required parking is included in Appendix B. A summary of the analysis is provided below.

Total code-required stalls for Existing Campus Conditions:	258 stalls
Total code-required stalls for Proposed IG Plant Expansion Project:	14 stalls
Total code-required stalls for Proposed Campus Conditions:	272 stalls
Total Number of Constructed/Existing Stalls to Remain:	187 stalls
Total Number of Stalls proposed by SITE25-0082:	21 stalls
Code Required Stalls minus Proposed Stalls:	64 stall deficiency

As a part of this study (and per OMC 122-1016), we have also reviewed parking recommendations by the Institute of Transportation Engineers (ITE). A detailed analysis using the ITE Parking Generation Manual (6th/Current Edition – lower limit of the 95% confidence interval) is included in Appendix C. Below is a summary of the ITE recommended parking:

Total ITE recommended stalls for Existing Campus Conditions:	286 stalls
Total ITE recommended stalls for Proposed IG Plant Expansion Project:	29 stalls
Total ITE recommended stalls for Proposed Campus Conditions:	315 stalls
Total Number of Constructed/Existing Stalls to Remain:	187 stalls
Total Number of Stalls proposed by SITE25-0082:	21 stalls
ITE Recommended Stalls Minus Proposed Stalls:	107 stall deficiency

Based on Ocala Municipal Code and ITE standards, the site falls below the recommended amount of parking. Many City codes are derived from or benchmarked against ITE data. Both the Ocala Municipal code and the ITE call for parking based on building square footages and do not account for the highly automated processes and multiple shifts that dictate actual parking demands at the Cardinal site.

The ITE Parking Generation Manual emphasizes that its data are based on observed conditions from a broad set of facilities and are intended to inform, not dictate, site-specific requirements. **The Manual goes on to state that, users are cautioned to use professional judgment in applying all data.** In accordance with this recommendation, we have reviewed the actual needs of the Cardinal Campus, please see the next section of this Study.

4 Cardinal Campus Parking Requirements

We propose to base parking needs on actual site user data that outlines the total number of employees anticipated at the conclusion of this project and how they are spread across a 24-hour period in three shifts. The new addition will result in 4 new employees (2 for day shift and 2 for second shift). A detailed analysis of the Cardinal shift data together with peak parking demand based on the provided data is included in Appendix D and summarized below. This data includes projected employee numbers upon completion of the proposed addition:

Total Number of Campus Employees:	203
Peak number of Parking Stalls needed:	193 stalls
Total Number of Constructed/Existing Stalls to Remain:	187 stalls
Total Number of Stalls proposed by SITE25-0082:	21 stalls

The 187 constructed parking stalls, coupled with the 21 additional/permitted stalls (208 stalls total) will adequately serve the Cardinal Campus under the proposed conditions during the peak demand period. There are no past, current, or anticipated parking deficiencies, spillover, or public complaints that have been documented.

5 Summary and Conclusion

The variability in parking demand across land use types that is outlined in the Ocala Municipal Code and the ITE — especially in manufacturing — supports using professional judgment to adjust estimates based on unique site operations. Based on a review of the owner-provided employee counts and shift data, the constructed parking that will remain onsite in the proposed condition (187 stalls) plus the permitted parking to be constructed (21 stalls) will be sufficient (208 total stalls). No new parking is being proposed with the permit for the plant expansion. Pursuant to OMC 122-1016, we hereby formally request approval of a parking reduction from 272 to 208 (reduction of 64 stalls).

Below is a summary of the conditions that support the parking reduction:

1. **Highly Automated Plant Processes:** The Cardinal IG Plant operates with a high degree of automation, relying on advanced equipment and machinery to manage the majority of its manufacturing processes. As a result, the facility requires fewer on-site employees per square foot than a traditional manufacturing/industrial operation. Much of the IG Plant's floor area is occupied by fixed automated manufacturing equipment or stored materials. This results in a much lower employee density than would be assumed by standard parking ratios based solely on gross floor area. Consequently, code-based or ITE-based estimates that rely solely on square footage overstate actual parking demand for this facility.

2. **Multiple Work Shifts:** The IG Plant operates continuously, with multiple shifts scheduled over a 24-hour cycle. This means that employee arrival and departure times are spread throughout the day, significantly reducing the likelihood of a parking shortage. Neither the City of Ocala's parking code nor the ITE Parking Generation Manual explicitly addresses this type of shift work or offers reduction factors for distributed staffing models. However, it is widely accepted in transportation planning that multiple shifts reduce peak demand on site infrastructure, including parking.

3. **Observed Parking Conditions:** Since the facility's initial development, on-site parking has consistently met operational needs without overflow, adjacent lot use, or complaints from staff or the public. The stalls constructed, plus those already permitted, will support both the IG Plant and Tech Center without any indication of shortage, even during high-activity periods. There is no record of spillover parking into surrounding areas, and no known complaints submitted to the City or to site management. These observed conditions confirm that the proposed parking supply is functionally sufficient, even as building square footage has increased, and further supports the rationale for the requested parking reduction.

4. **Future Parking Surplus:** Recently, a tenant improvement for the Tech Center, permitted by the City, required the proposal of 21 new parking stalls. At the time of this writing (07/22/25), the stalls (permitted under SITE25-0082) have not been constructed. We anticipate that the 21 additional stalls will be constructed in the coming weeks; their completion is a condition of the Certificate of Occupancy for the Tech Center TI. These 21 stalls, will provide a parking surplus of 15 stalls on the site.

Appendix A Campus Parking Exhibit

EXISTING 18 PARKING STALLS
(TO BE REMOVED)

PROPOSED NOTCH
INFILL DEVELOPMENT

EXISTING CARDINAL INSULATED
GLASS (IG) PLANT BUILDING
PARCEL 23325-001-01
4185 SW 13TH ST

EXISTING
TECH
CENTER
(TC)
BUILDING

EXISTING 22 PARKING STALLS
(TO REMAIN)

21 PARKING STALLS
(PROPOSED BY
SITE25-0082)

EXISTING 165 PARKING STALLS
(TO REMAIN)

SW 44TH AVENUE

SW 13TH STREET

SW 42ND AVENUE

TOTAL EXISTING PARKING STALLS: 205
TOTAL PROPOSED PARKING STALLS:
187 (EXISTING TO REMAIN)
21 (PROPOSED BY SITE25-0082)
208 TOTAL

PARKING EXHIBIT

SCALE: 1"=200'

NORTH

FIGURE NO.
EX-01

PREPARED FOR
CARDINAL IG

PROJECT
PLANT EXPANSION

PROJECT NO. 20833 BY DF DATE 06/20/2025

SITTS & HILL ENGINEERS, INC.

Appendix B City of Ocala Parking Analysis

Cardinal IG/TC Campus - Ocala, FL

Required Parking per
Ocala Municipal Code
Section 122-1010(22)

IG Plant Existing Conditions

Existing Conditions Manufacturing		**422,129 sf**				
Manufacturing and Production	1 stall per	750 sf	for the first	20,000 =	27	Stalls
	1 stall per	2,000 sf	for the second	20,000 =	10	Stalls
	1 stall per	4,000 sf	for areas in excess of	40,000 =	96	Stalls
Total Manufacturing Parking (Existing Conditions)					**133**	**Stalls**
Existing Warehouse/Storage		**8,933 sf**				
	1 stall per	1000 sf	for the first	20,000 =	9	Stalls
	1 stall per	2,000 sf	for the second	20,000 =	0	Stalls
	1 stall per	4,000 sf	for areas in excess of	40,000 =	0	Stalls
Total Warehouse/Storage Parking (Existing Conditions)					**9**	**Stalls**
Existing Office		**15,840 sf**				
	1 stall per	300 sf			53	Stalls
Total Office Parking (Existing Conditions)					**53**	**Stalls**
TOTAL IG PLANT STALLS REQUIRED (Existing Conditions)					***195***	***Stalls***

Tech Center Existing Conditions

Existing Manufacturing Laboratory		**23,921 sf**				
Manufacturing and Production	1 stall per	750 sf	for the first	20,000 =	27	Stalls
	1 stall per	2,000 sf	for the sec	20,000 =	2	Stalls
	1 stall per	4,000 sf	for areas in	40,000 =	0	Stalls
Total Manufacturing Parking (Existing Conditions)					**29**	**Stalls**
Existing Lab		**0 sf**				
	1 stall per	1000 sf	for the first	20,000 =	0	Stalls
	1 stall per	2,000 sf	for the sec	20,000 =	0	Stalls
	1 stall per	4,000 sf	for areas in	40,000 =	0	Stalls
Total Warehouse/Storage Parking (Existing Conditions)					**0**	**Stalls**
Existing Office		**10,096 sf**				
	1 stall per	300 sf			34	Stalls
Total Office Parking (Existing Conditions)					**34**	**Stalls**
TOTAL TECH CENTER STALLS REQUIRED (Existing Conditions)					***63***	***Stalls***

258 TOTAL STALLS REQUIRED FOR EXISTING CONDITIONS

IG Plant Proposed Conditions

Proposed Conditions Manufacturing		**476,581 sf**				
Manufacturing and Production	1 stall per	750 sf	for the first	20,000 =	27	Stalls
	1 stall per	2,000 sf	for the second	20,000 =	10	Stalls
	1 stall per	4,000 sf	for areas in excess of	40,000 =	110	Stalls
Total Manufacturing Parking (Proposed Conditions)					**147**	**Stalls**
Proposed Warehouse/Storage		**8,933 sf**				
	1 stall per	1000 sf	for the first	20,000 =	9	Stalls
	1 stall per	2,000 sf	for the second	20,000 =	0	Stalls
	1 stall per	4,000 sf	for areas in excess of	40,000 =	0	Stalls
Total Warehouse/Storage Parking (Proposed Conditions)					**9**	**Stalls**
Proposed Office		**15,840 sf**				
	1 stall per	300 sf			53	Stalls
Total Office Parking (Proposed Conditions)					**53**	**Stalls**
TOTAL IG PLANT STALLS REQUIRED (Proposed Conditions)					***209***	***Stalls***

Tech Center Proposed Conditions

Proposed Manufacturing Laboratory		**23,921 sf**				
Manufacturing and Production	1 stall per	750 sf	for the first	20,000 =	27	Stalls
	1 stall per	2,000 sf	for the sec	20,000 =	2	Stalls
	1 stall per	4,000 sf	for areas in	40,000 =	0	Stalls
Total Manufacturing Parking (Proposed Conditions)					**29**	**Stalls**
Proposed Lab		**0 sf**				
	1 stall per	1000 sf	for the first	20,000 =	0	Stalls
	1 stall per	2,000 sf	for the sec	20,000 =	0	Stalls
	1 stall per	4,000 sf	for areas in	40,000 =	0	Stalls
Total Warehouse/Storage Parking (Proposed Conditions)					**0**	**Stalls**
Proposed Office		**10,096 sf**				
	1 stall per	300 sf			34	Stalls
Total Office Parking (Proposed Conditions)					**34**	**Stalls**
TOTAL TECH CENTER STALLS REQUIRED (Proposed Conditions)					***63***	***Stalls***

272 TOTAL STALLS REQUIRED FOR PROPOSED CONDITIONS

14 Additional Stalls are Required per OMC

Sec. 122-1010. Required number of spaces.

(a) *Requirements for specific uses.* Off-street parking required by this article shall be provided and maintained on the basis of the following minimum requirements:

(1) Single-family dwellings: One parking space.

(2) Two-family and multiple-family dwellings: 1½ parking spaces for each dwelling unit.

(3) Rooming/boarding house: One parking space for each three beds plus one parking space for each two employees. Community residential home: One parking space per four unrelated residents, plus one space per owner or resident operator.

(4) Dormitories or fraternities: Two parking spaces for each three beds, plus one parking space for the manager or operator, plus one parking space for each two employees.

(5) Hotels, including clubs: Two parking spaces for each three sleeping rooms, or two parking spaces for each three bedrooms, whichever may be the greater, plus one parking space for each three employees. If, in addition to sleeping rooms, there are other uses operated in conjunction with and/or as part of the hotel, additional off-street parking spaces shall be provided for such other uses as would be required by this section if such uses were separate from the hotel.

(6) Motels or recreational vehicle parks: One parking space for each guestroom, cabin rental unit, or each recreational vehicle site plus one parking space for the owner or manager. If, in addition to sleeping rooms or recreational vehicles sites, there are other uses operated in conjunction with and/or as part of the motel or recreational vehicle park, additional off-street parking spaces shall be provided for such other uses as would be required by this section if such uses were separate from the motel or recreational vehicle park.

(7) Trailer courts, camps or mobile home parks: One parking space for each trailer or mobile home lot, plus one (1) parking space for each two lots, plus one parking space for the owner or manager.

(8) Hospitals: One parking space for each two beds for patients, plus one parking space for each two paid employees.

(9) Assisted living facilities and transitional recovery facilities: One parking space for each three beds, in addition to one parking space for each two employees (see special exception requirements in subsection 122-1198(a) for an assisted living facility in the R-2 district).

(10) Theaters and other places of assembly having fixed seats: One parking space for each three seats.

(11) Places of public assembly, including assembly halls (except those included under subsection (a)(10) of this section, theaters and other places of public assembly having fixed seats), exhibition halls, convention halls, dancehalls, skating rinks, sports arenas, community centers, libraries and museums: One parking space for each three seats, or one parking space for each 200 square feet of gross floor area occupied by guests, customers, members or other occupants, whichever may be greater.

(12) Churches/places of worship: One parking space for each five seats in auditorium or chapel area, not including classrooms.

(13) Stadiums, racetracks, fairgrounds, circus grounds: One parking space for each three seats.

(14) Bowling centers: Four parking spaces for each lane.

(15) Funeral homes and crematoriums: One parking space for each four seats in public rooms.

(16) Medical and dental offices: One parking space for each 300 square feet of gross floor area and one parking space for each employee.

(17) Business, professional and governmental offices: one parking space for each 300 square feet of floor area.

(18) Restaurants (excluding fast-food), bars, clubs and nightclubs: One parking space for each three seats in the rooms for customer service, plus one space for each two employees.

(19) Elementary schools and middle schools: One parking space for each classroom, one space for each administrative employee, plus one-half of the additional parking spaces for rooms used for public assembly as otherwise required by this section.

(20) High schools: One parking space for each classroom, plus six spaces for every ten students. Parking for places of public assembly (i.e., auditoriums, stadiums, etc.) shall meet the requirements of subsection (a)(11) of this section.

(21) Stores, shops and shopping centers:

a. Retail stores, personal service shops, household repair or equipment shops, and interior decoration shops: One parking space for each 300 square feet of floor area.

b. Shopping centers: retail stores, personal service shops, household repair or equipment shops, interior decoration shops, and other retail uses in a shopping center: One parking space for each 250 square feet of floor area.

c. Single retail store developments: One parking space for each 250 square feet of floor area.

(22) Manufacturing facilities, research and testing laboratories, printing and distribution facilities, and industrial dry cleaning plants:

a. One space for each 750 square feet of gross floor area for the first 20,000 square feet devoted to manufacturing and related uses,

b. One space for each 2,000 square feet for the second 20,000 square feet,

c. One space for each 4,000 square feet for floor area in excess of 40,000 square feet, and

d. Showroom sales and other retail uses that are part of any of these uses shall meet the requirements of retail uses outlined in subsection (a)(21), of this section.

(23) Terminal facilities, including airports, railroad passenger and freight stations, bus depots and truck terminals, also commercial swimming pools and the like: One parking space for each two employees, plus off-street parking space in an amount to be determined by the planning and zoning commission to be adequate to serve employees and the public as customers, patrons and visitors.

(24) Fast food restaurants and drive-in or drive-through restaurants: One parking space for every two employees, plus one parking space for each two seats. The number of seats will include both indoor and outdoor seating.

(25) Airport hangars: Two parking spaces for each hangar, and one parking space for each two employees.

(26) Airport "T" hangars: One parking space for each "T" hangar.

(27) Miniature golf courses or driving ranges: One parking space for each hole or tee, and one space for every two employees.

(28) Day care facilities: One parking space per five children, plus one space for each employee.

(29) Arcades and billiard parlors: One parking space for each two video games, two spaces for every billiard table, and one space for every three seats, plus one space for each two employees.

(30) Colleges, universities, and vocational and professional schools: One parking space per classroom, plus six spaces for every ten students. Parking for places of public assembly shall meet the requirements of subsection (a)(11) of this section.

(31) Warehouses and storage buildings:

a. One space for each 1,000 square feet of gross floor area for the first 20,000 square feet devoted to warehousing,

b. One space for each 2,000 square feet for the second 20,000 square feet,

c. One space for each 4,000 square feet for floor area in excess of 40,000 square feet, and

d. Showroom sales and other retail uses that are part of any of these uses shall meet the requirements of retail uses outlined in subsection (a)(21), of this section.

(32) Hotel with convention center: One parking space for every 200 square feet of floor area of the convention center, in addition to the spaces required in subsection (a)(5) of this section for the hotel.

(33) Swimming pool sales, outdoor sales: One parking space for each 300 square feet of floor area in the sales or office building, plus one parking space for each 1,000 square feet of outdoor display area or outdoor display and sales area.

(b) *Uses not listed.* The requirements for off-street parking for any uses not specifically mentioned in this section shall be the same as provided in this section for the use most similar to the one sought, it being the intent to require all uses to provide off-street parking.

(c) *Fractional units.* When units or measurements determining the number of required off-street parking spaces result in a requirement of a fractional space, any such fraction equal to or greater than one-half shall require a full off-street parking space.

(d) *Mixed uses.* In the case of mixed uses, the total requirements for off-street parking shall be the sum of the requirements of the various uses computed separately, and off-street parking space for one use shall not be considered as providing the required off-street parking for any other use.

(e) *Computation of floor area and seating.* For the purposes of this article, floor area shall mean the gross floor area inside of the exterior walls. In hospitals, bassinets shall not count as beds. In stadiums, sport arenas, churches and other places of assembly in which occupants utilize benches, pews or other similar seating facilities, each 22 lineal inches of such seating facilities shall be counted as one seat for the purpose of computing off-street parking requirements.

(f) *Minimum requirement for each business.* Irrespective of any other requirement of this article, each and every separate and individual store, office or other business shall be provided with at least one off-street parking space.

(Code 1961, § 22-12(3); Code 1985, § 7-944; Ord. No. 2275, §§ 49, 50, 5-5-92; Ord. No. 2401, § 5, 9-7-93; Ord. No. 2608, § 4, 6-11-96; Ord. No. 2730, §§ 10, 11, 6-3-97; Ord. No. 2751, § 41, 8-19-97; Ord. No. 5043, § 15, 4-9-02; Ord. No. 5406, § 43, 7-12-05; Ord. No. 5759, § 1, 12-18-07; Ord. No. 2021-50, § 8, 5-18-21)

Appendix C ITE Parking Analysis

Cardinal IG/TC Campus - Ocala, FL

Parking Recommendations per
ITE Parking Generation Manual
6th Edition (Latest Version)

IG Plant Existing Conditions					
Existing Conditions Manufacturing		**422,129 sf**			
Manufacturing and Production	0.53 stall per	1000 sf	of floor area	224 Stalls	
(LUC 140 - Manufacturing)					
Total Manufacturing Parking				**224 Stalls**	
Existing Warehouse/Storage		**8,933 sf**			
	0.29 stall per	1000 sf	of floor area	3 Stalls	
(LUC 150 - Warehousing)					
Total Warehouse/Storage Parking (Existing Conditions)				**3 Stalls**	
Existing Office		**15,840 sf**			
(LUC 710 General Office)	1.79 stall per	1000 sf		28 Stalls	
Total Office Parking (Existing Conditions)				**28 Stalls**	
TOTAL IG PLANT STALLS REQUIRED (Existing Conditions)				***255 Stalls***	

Tech Center Existing Conditions					
Existing Manufacturing Laboratory		**23,921 sf**			
Manufacturing and Production	0.53 stall per	1000 sf	of floor area	13 Stalls	
(LUC 140 - Manufacturing)					
Total Manufacturing Parking				**13 Stalls**	
Existing Lab		**0 sf**			
	0.29 stall per	1000 sf	of floor area	0 Stalls	
(LUC 150 - Warehousing)					
Total Warehouse/Storage Parking (Existing Conditions)				**0 Stalls**	
Existing Office		**10,096 sf**			
(LUC 710 General Office)	1.79 stall per	1000 sf		18 Stalls	
Total Office Parking (Existing Conditions)				**18 Stalls**	
TOTAL TECH CENTER STALLS REQUIRED (Existing Conditions)				***31 Stalls***	

286 TOTAL STALLS REQUIRED FOR EXISTING CONDITIONS

IG Plant Proposed Conditions					
Proposed Conditions Manufacturing		**476,581 sf**			
Manufacturing and Production	0.53 stall per	1000 sf	of floor area	253 Stalls	
(LUC 140 - Manufacturing)					
Total Manufacturing Parking (Proposed Conditions)				**253 Stalls**	
Proposed Warehouse/Storage		**8,933 sf**			
	0.29 stall per	1000 sf	of floor area	3 Stalls	
(LUC 150 - Warehousing)					
Total Warehouse/Storage Parking (Proposed Conditions)				**3 Stalls**	
Proposed Office		**15,840 sf**			
(LUC 710 General Office)	1.79 stall per	1000 sf		28 Stalls	
Total Office Parking (Proposed Conditions)				**28 Stalls**	
TOTAL IG PLANT STALLS REQUIRED (Proposed Conditions)				***284 Stalls***	

Tech Center Proposed Conditions					
Proposed Manufacturing Laboratory		**23,921 sf**			
Manufacturing and Production	0.53 stall per	1000 sf	of floor area	13 Stalls	
(LUC 140 - Manufacturing)					
Total Manufacturing Parking (Proposed Conditions)				**13 Stalls**	
Proposed Lab		**0 sf**			
	0.29 stall per	1000 sf	of floor area	0 Stalls	
(LUC 150 - Warehousing)					
Total Warehouse/Storage Parking (Proposed Conditions)				**0 Stalls**	
Proposed Office		**10,096 sf**			
(LUC 710 General Office)	1.79 stall per	1000 sf		18 Stalls	
Total Office Parking (Proposed Conditions)				**18 Stalls**	
TOTAL TECH CENTER STALLS REQUIRED (Proposed Conditions)				***31 Stalls***	

315 TOTAL STALLS REQUIRED FOR EXISTING CONDITIONS

29 Additional Stalls are Required per ITE

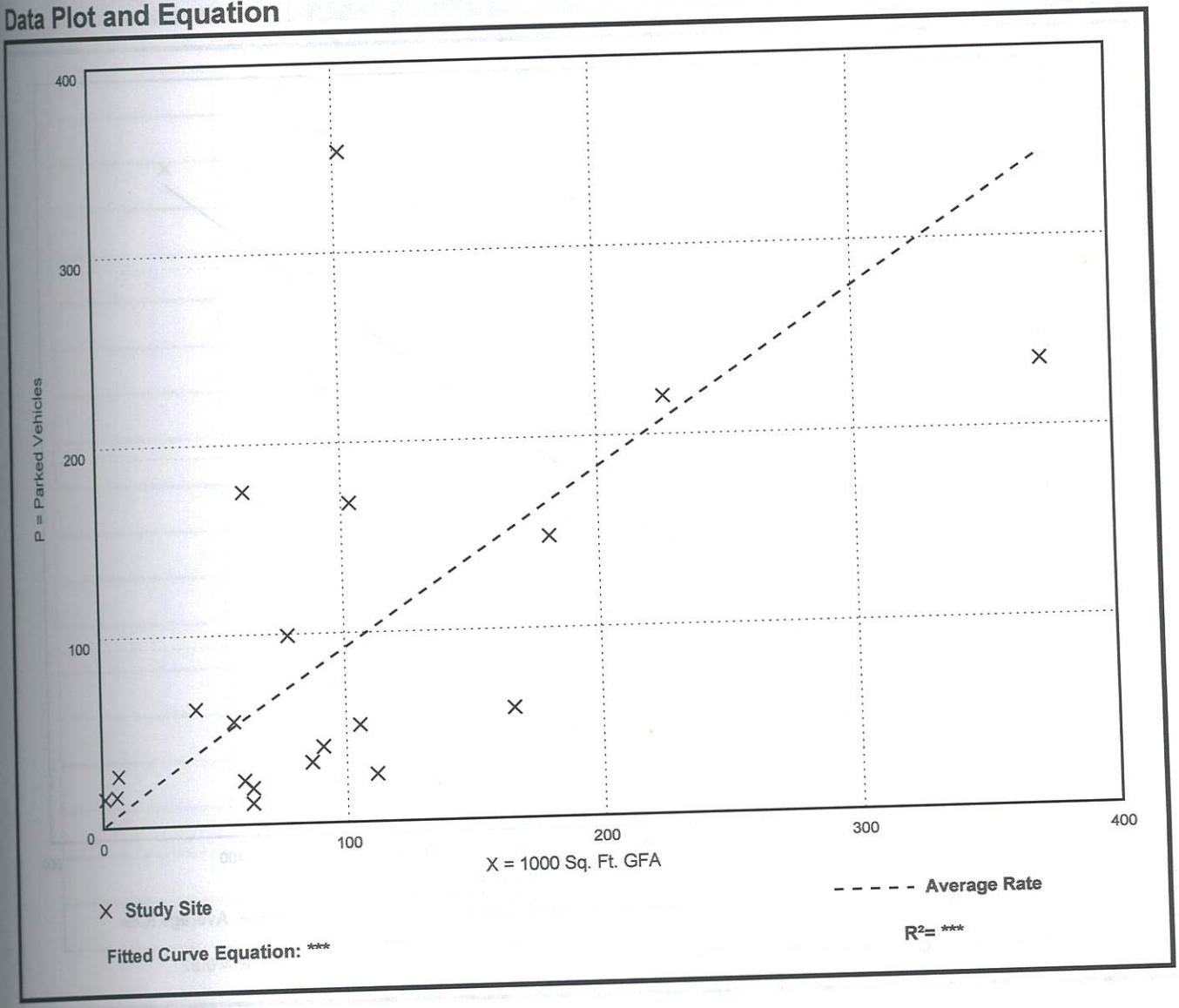
Manufacturing
(140)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Number of Studies: 20
Avg. 1000 Sq. Ft. GFA: 99

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.92	0.17 - 13.75	0.44 / 3.36	0.53 - 1.31	0.89 (97%)

Data Plot and Equation



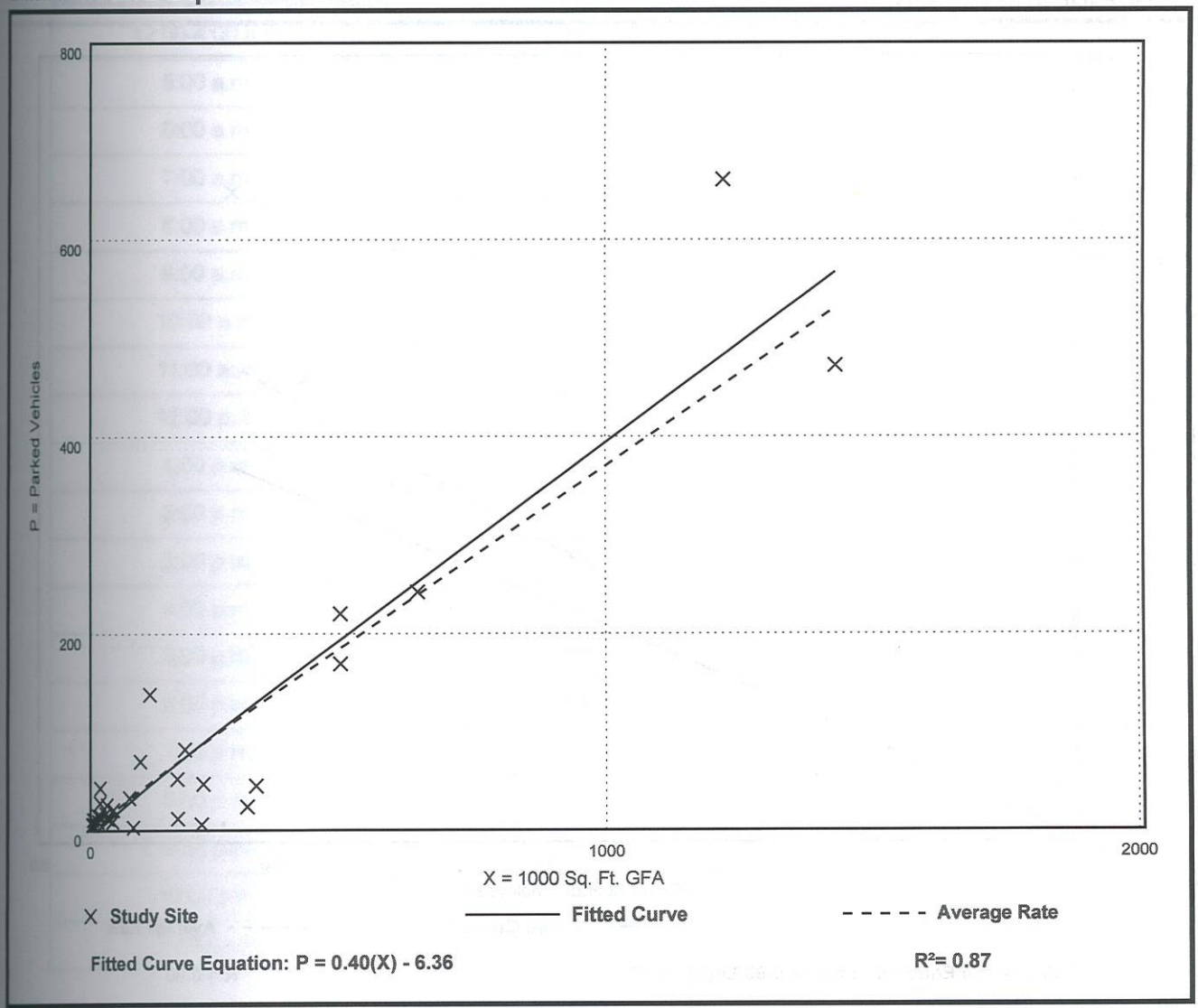
Warehousing
(150)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Number of Studies: 31
Avg. 1000 Sq. Ft. GFA: 220

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.37	0.03 - 1.96	0.33 / 1.11	0.29 - 0.45	0.22 (59%)

Data Plot and Equation



Fitted Curve Equation: P = 0.40(X) - 6.36

R^2= 0.87

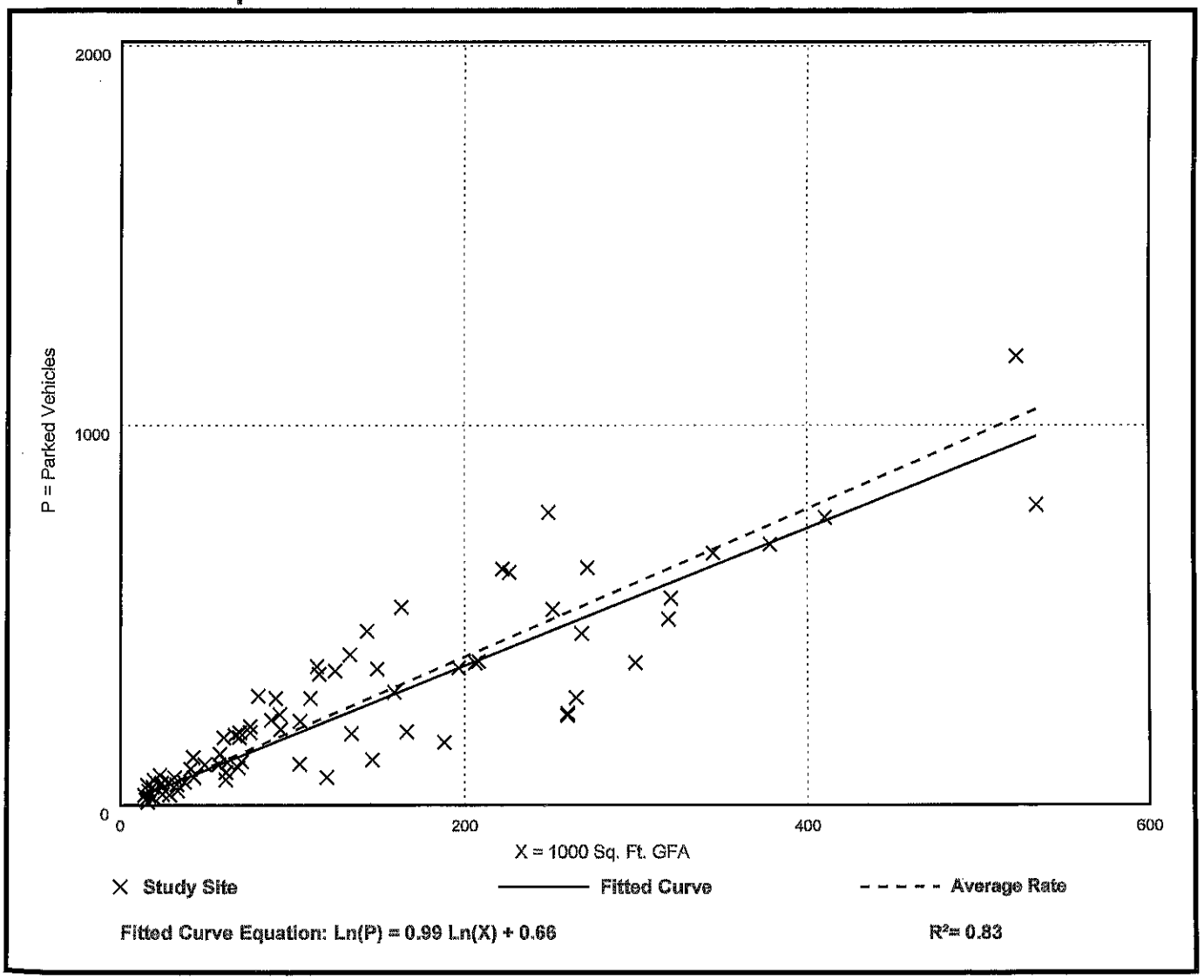
General Office Building
(710)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Number of Studies: 77
Avg. 1000 Sq. Ft. GFA: 131

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.95	0.50 - 3.60	1.68 / 2.98	1.79 - 2.11	0.70 (36%)

Data Plot and Equation



Fitted Curve Equation: Ln(P) = 0.99 Ln(X) + 0.66

R^2= 0.83

Appendix D Cardinal Employee & Shift Data

Cardinal IG/TC Campus - Ocala, FL

Employee and Shift Data from Cardinal Plant Management

Shift	Building/Site Use	No. of Employees**	Shift Total
Day Shift M-F (7a-3p)	IG (Office)**	20	136
	IG Plant (Manufacturing/Warehouse)**	102	
	Tech Center (Office/Manufacturing Lab)*	14	
Second Shift M-F (3p-11p)	IG (Office)**	5	57
	IG Plant (Manufacturing/Warehouse)**	52	
	Tech Center (Office/Manufacturing Lab)	0	
Night Shift M-F (11p-7a)	IG (Office)**	0	10
	IG Plant (Manufacturing/Warehouse)**	10	
	Tech Center (Office/Manufacturing Lab)	0	
Total Campus Employees		**203**	
Peak Parking Demand is during Day Shift & Second Shift Overlap			
Total Peak Onsite Employees/Peak No. of needed Stalls		***193***	

**Tech Center Employees may stay onsite until about 7p, but there are not multiple shifts at the Tech Center. This does not affect the peak parking demand*

***Anticipated after completion of the proposed expansion (2 employees added to day shift, 2 to Second Shift)*