XII. SITE AND SUBDIVISION INSPECTION (SSI)

A. PROFILE

The Site and Subdivision Inspection Division (SSI) of the Planning and Development Review Department (PDRD) is primarily responsible for inspection and verification to assure that all public infrastructure constructed by private development conforms to the plans, specifications, rules, and applicable city codes. In addition this division includes inspection of environmental requirements related to private development as well as environmental code enforcement. Calls for inspection from development contractors are received subsequent to plans approval and permit issuance for public infrastructure construction. Environmental code enforcement is also conducted by this division that is not necessarily associated with ongoing private development.

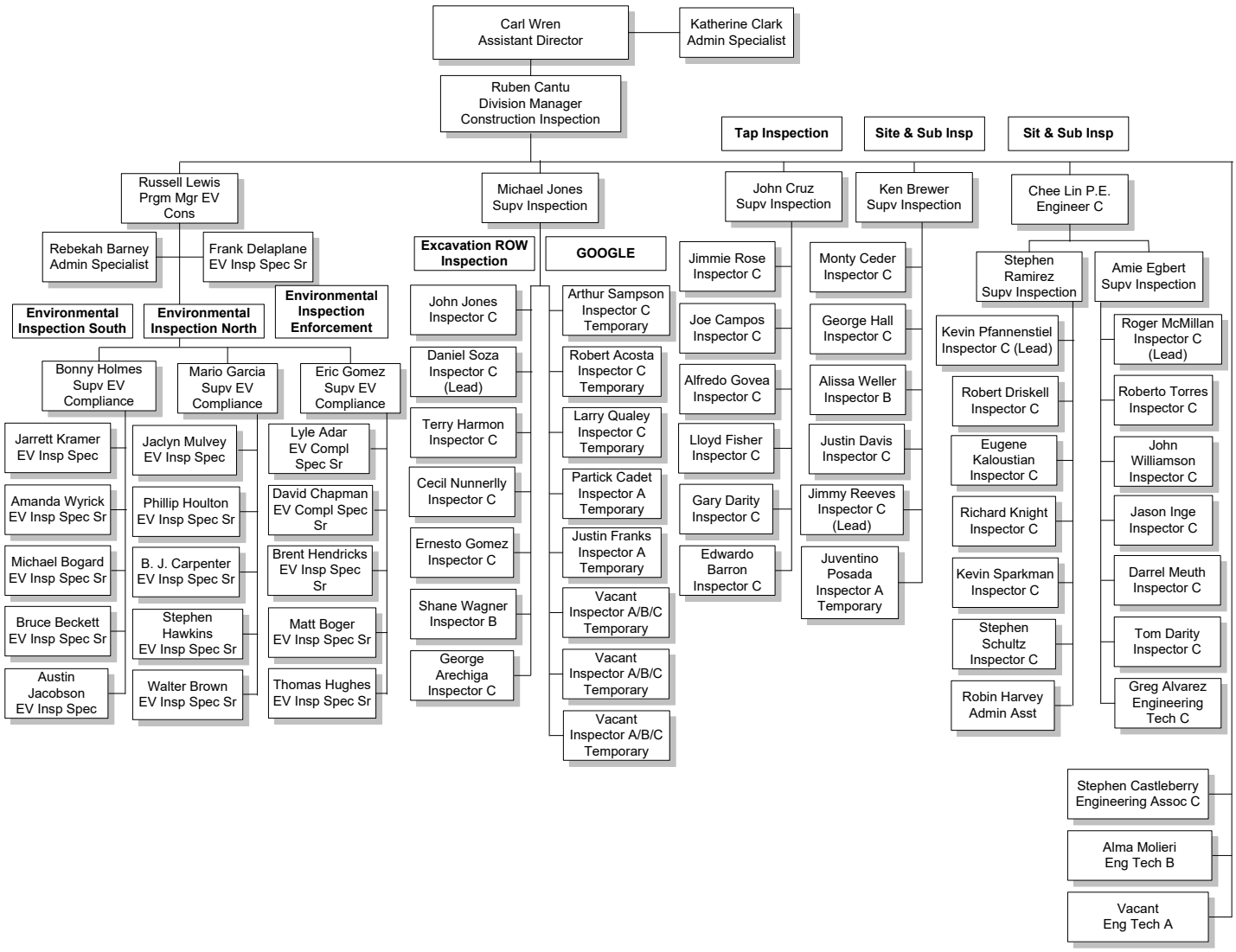
Authority

Fundamental authority is vested to the Site and Subdivision Division within chapters 25 and 30 of the Austin Municipal Development Code. Other sections of this report have described the city code and the ongoing process of its revisions by the City of Austin with the CodeNEXT group within PDRD. The Site and Subdivision Manager reports to an Assistant Director who in turn reports to the Department Director.

Organization

The organization of the Site & Subdivision Inspection (SSI) Division is shown in Figure 38. Staff positions and functions are shown in Table 67. These may not match the current staffing but were accurate at the time we did our research. There are 10 separate groups currently organized to facilitate and assure that construction of public infrastructure by private development contractors and their agents fulfill all city requirements. Inspection disciplines as well as geographic project location are both considerations related to this organizational arrangement.

Figure 38
Organization of Site/Subdivision Inspection



There have been changes to the above chart during the course of this study. For example 2 positions in EV enforcement compliance have been moved as well as other minor adjustments made since the beginning of this study. The vacant position for the Assistant Director to whom the SSI division Manager reports has been filled as well. We have not attempted to continually update the organization charts unless necessary for our recommendations.

Staffing

Table 67
Staffing and Functions in Site/Subdivision Inspection

Position Title	Number of Positions	Responsibilities	Reports To
Assistant Director	1(Wren)	Manages Building Inspection, Commercial Building Review, Permit Center, Residential Review, and Site/Subdivision Inspections	Director
Division Manager, Construction Inspections	1 Cantu	Manages the Site and Subdivision Section	Assistant Director
Engineering Assoc C	1 Castleberry	Assigns incoming inspections to appropriate staff	Division Manager, Construction Inspections
Eng Tech B	1Molieri	Assists E Assoc C	Engineer Assoc. C
Eng Tech A	1Wagner	Assists E Assoc C (coordinates with EA group)	Engineer Assoc C
Environmental Inspections			
Prgm Mgr. EV Cons	1Lewis	Supervises EV Inspection Group	Division Manager, Construction Inspections
Admin Specialist	1Barney	EV Group admin, correspondence, reports	Prgm Mgr. EV Cons
EV Compliance Spec Sr	1Delaplane	Barton Springs Zone Operating Permit Program	Prgm Mgr. EV Cons
EV Insp Spec Sr	1 Boger	Barton Springs Zone Operating Permit Program	Prgm Mgr. EV Cons
Environmental Inspection South			
Supv. EV Compliance	1Holmes	Supervises South EV insp team	Prgm Mgr. EV Cons
EV Insp Spec Sr	4Wyrick*;Bogard; Hughes; Carpenter	South EV inspections;*Code Next team member	Supv. EV Compliance
EV Insp Spec	1Jacobson;	South EV Inspections	Supv. EV Compliance
Environmental Inspection North			
Supv. EV Compliance	1M.Garcia	Supervises EV North team	Prgm Mgr. EV Cons
EV Insp Spec Sr	4Houlton,Hawkins,Brown; Beckett	North EV Inspections	Supv. EV Compliance
EV Insp Spec	2Mulvey, Kramer	North EV Inspections	Supv. EV Compliance
Environmental Inspection Enforcement			
Supv. EV Compliance	1E. Gomez	Legal EV enforcement, Legal advisor to Director for land use and development	Prgm Mgr. EV Cons
EV Compliance Spec Sr	Chapman;	EV investigations and, violation enforcement	Supv. EV Compliance
EV Program Coord	1 Hendricks	Landscape Inspections	Supv. EV Compliance
Supv. Inspection	1 M Jones	Supervises R/W encroachments,street imprv,SW	Division Manager, Construction Inspections
Inspector C	6Soza(lead); vacant; et al	Inspects street,SWalks,curb, minor constr./encroachments	Supv. Inspection
Inspector A	1Harmon	constr/encroachments	Supv. Inspection
Google (Not a direct part of this study)			
Inspector C	6	Google Inc is conducting a special study in Austin to enhance IT connectivity. See text of this report for detailed discussion	Supv. Inspection
Inspector A	2		Supv. Inspection
~~"Tap"~~ Utilities Inspection			
Supv. Inspection	1Cruz	Supervises Utilities Inspection Team	Division Manager, Construction
Inspector C	5Rose;Campos; Govea;Fisher; Darity; Barron	Utility line inspections(Water, sewer, etc)	Supv. Inspection

Position Title	Number of Positions	Responsibilities	Reports To
Site & Sub Inspection			
Supv. Inspection	1 Brewer	Supervises Major infrastructure inspections team	Division Manager, Construction Inspections
Inspector C	5Ceder;Hall;Davis;Reeves(lead);Caldwell	Major infrastr. Const roads,bridges,complex projects	Supv. Inspection
Inspector B	1Weller	Major infrastr. Const roads,bridges,complex projects	Supv. Inspection
Inspector A	1Posada(temp)	Major infrastr. Const roads,bridges,complex projects	Supv. Inspection
Engineer C	1Lin	Supervision for engineering and subdivisions inspection N&S groups	Division Manager, Construction Inspections
Supv. Inspection	2Rameriz;Egbert	Supv N&S Subdiv Insp Teams	Engineer C
Inspector C	Pfannenstiel(lead N)+5 McMillan(lead-	Subdivision Infrasture inspections incl grading for public R/W	Supv. Inspection
Admin Asst	1Harvey	Reports, correspondence, time sheets	Supv. Inspection
Engineering Tech C	1Alverez	subdivisions	Supv. Inspection
TOTAL			
Excavation ROW Inspection			
Supv. Inspection	1 M Jones	Supervises R/W encroachments,street imprv,SW	Division Manager, Construction Inspections
Inspector C	6Soza(lead); vacant; et al	Inspects street,SWalks,curb, minor constr./encroachments	Supv. Inspection
Inspector A	1Harmon	constr/encroachments	Supv. Inspection
Google (Not a direct part of this study)			
Inspector C	6	Google Inc is conducting a special study in Austin to enhance IT connectivity. See text of this report for detailed discussion	Supv. Inspection
Inspector A	2		Supv. Inspection
~~"Tap"~~ Utilities Inspection			
Supv. Inspection	1Cruz	Supervises Utilities Inspection Team	Division Manager, Construction Inspections
Inspector C	5 Rose;Campos;Govea;Fisher,	Utility line inspections(Water, sewer, etc)	Supv. Inspection

B. POSITIVE FINDINGS

- The SSI Division responsibility covers all work associated with the inspection of the implementation of public infrastructure including related environmental work;
- The Public Works Department reports that they are satisfied that public infrastructure accepted by the SSI is in compliance with all appropriate standards and specifications;

- Many staff within the Division have long-term experience and professional certification including registered professional engineers and a licensed attorney;
- Work assignments are received and directed to appropriate inspection staff groups within the SSI Division through an experienced staff group to help assure the best match for both geographic location and technical inspection requirements;
- Preconstruction meetings are coordinated to assure that all disciplines required including environmental, other specialists and agencies are involved participants;
- Staff turnover rate is low in SSI resulting in a stable staff and indicative of good morale in the Division;
- One group of inspectors works exclusively with right of way (ROW) excavations and utility trench work to assure timely inspections for active work in the public ROW by franchise utility companies and others; and
- SSI as well as other PDRD and other city Department staff participated and were very helpful with efforts and information during this study.

C. ORGANIZATION ISSUES

Introduction

SSI is a large and diverse division. The basic organization includes the necessary expertise and staff to meet its mission to assure compliance of the city codes and rules for new infrastructure created by private development as well as environmental inspection and code enforcement. However, the division is fragmented, and while it has a stable and expert staff, it must improve its overall management and administration. Much of the following discussion and corresponding recommendations are oriented to that need. While we believe the basic organizational concept for SSI is sound, the recommendations below will allow it to meet its mission more effectively.

Communications between Land Use/Site Subdivision Divisions

There is basically no formal link or communication between the Land Use (LUR) and SSI Divisions. The two divisions currently report to different Assistant Directors as well. The SSI manager and key supervisors do not receive any routine information regarding recently approved project plans or permits. From time to time SSI staff has informally reported back to LUR when they discover approved plans that include out of date or incorrect details or non-conformance to various “Rules” or have questions about a particular project.

The two divisions are operating completely independently from each other based on our observations. For example the first notice that SSI has of an approved permit typically comes from the contractor calling for inspection services and or a pre-construction meeting. This circumstance places the SSI Division in a total reactive mode with very

little ability to plan for upcoming staff assignments and other operations. It is apparent that the managers do not meet or confer on any regular schedule. The flow or continuum of development entitlement, plan approval and subsequent construction monitoring is severed in this organizational arrangement. It has been previously recommended in this report that SSI and LUR divisions report to the same Assistant Director.

314. ***Recommendation:*** **SSI and LU Division Managers should meet on a regular schedule, at least bi-weekly, to share information and review projects in progress, pending approved projects, and feedback from both design and inspection.**

315. ***Recommendation:*** **SSI and LU Division Managers should develop a special notice system utilizing AMANDA and listing pending projects and their scope that are scheduled for approval and permits within the next 30-45 days.**

Legal Services

A variety of legal issues related to Site/Subdivision inspection have been raised with the consultants. These are discussed in the Legal section of Chapter three.

Management and Administration of SSI Division

Because the division organization has been evolving over many years, particularly since 2004, some groups performing similar work are reporting to a supervising engineer and others currently report directly to the Division Manager. The Site and Subdivision division was previously organized whereby field infrastructure inspection teams reported through two separate professional engineers. In the past one of the engineers was promoted to the division manager position and the vacated engineering position was not filled. When workloads and management requirements were at a lower level the manager was able to fulfill the responsibilities of the vacated Professional Engineer and the Manager. This is no longer the case for the SSI Division.

316. ***Recommendation:*** **Add an additional Professional Engineer (Engineer C) position to replace the previously vacated position as shown on the proposed organization chart , Figure 39 seen later in this chapter.**

317. ***Recommendation:*** **The supervisors for ROW (Right-of-Way) Excavation, and for previously designated tap inspections which we will, for**

purposes of this report, call the excavation inspection group, should report to the Professional Engineer (Engineer C) recommended above and shown on the recommended revised organization chart , Figure 39.

The infrastructure inspection groups within SSI are organized into teams that are planned to cover the large geographic area of the city as well as the various technical specialties required to assure a complete inspection. The Environmental Group within this division has also been organized in a similar fashion. We believe that this concept for the organization is basically sound, however the specialists such as the R/W excavation group may not be able to adequately inspect all the work in progress because of the dual responsibility to supervise and coordinate the work of the Google team. It is reported that approximately 25% of the supervisors time is currently devoted to supervision of the Google effort. The Google program, albeit a short term program, to install improved connectivity for the internet is not a direct part of this study. There is nevertheless an obvious need for the SSI division to coordinate and oversee the work of the Google team, and it does impact the workload particularly for the R/W and excavation inspection group. We have noted that there is one vacant inspection position in the R/W group.

It also appears that the EV group operates independently from the infrastructure inspection teams. At the present time the EV Program Manager does not routinely participate in the SSI staff meetings. There is subsequent discussion and recommendations in this section pertaining to this issue.

318. ***Recommendation:*** **The Division Manager should review the workload and time allocation for the Excavation and ROW inspection group to determine if there is sufficient staff to complete all inspections in a timely and complete manner taking the Google program into account.**

319. ***Recommendation:*** **The environmental inspection group (EV) management and supervision should be more closely integrated with the overall management of the SSI division.**

The Division with over 60 staff and its wide range of inspection and environmental issues documentation requirements does not have an adequate level of administrative support. Daily communications and reports, personnel performance evaluations, time sheets and records, and many administrative details including workload and projects documentation are being kept in manual project oriented diaries. There isn't any apparent central filing or records management system for the division. Staff and personnel records including performance evaluations are not being securely tracked and maintained. Records such as

past memoranda of agreement with other departments are not maintained in a division file and have apparently been lost. Workload vs staffing analysis is becoming increasingly necessary for this division. There is also a need to have more complete integration of the management of data and reports as well as the need to evolve the SSI operations to paperless and up-to-date mobile IT systems. An administrative support staff supervisor with qualified knowledge of AMANDA as well as other IT systems is needed in this division.

The Division Manager is currently devoting the majority of his time to assuring the success of a primary division goal, namely verifying that the ongoing development infrastructure construction work is being completed in accordance with the plans, specifications and applicable "rules". Much of this detailed technical responsibility should be carried by the key staff and supervisors including the Professional Engineer position(s), the EV Program Manager, and key supervisors. The manager can improve the overall operations of the SSI by increasing his focus on division management and empowering the key staff and supervisors authority to act on the technical aspects of the work. It is also clear that the organization needs administrative assistance to assure that all administrative duties and obligations required to operate the division are being done..

The administration of the entire SSI Division should be focused through the Manager for both construction and environmental work. The present organizational arrangement opens opportunities for silos to grow between the EV and construction groups. Lack of coordination between environmental and construction activity has been a contributor to the reported breakdown of communications between builders, other city departments, and inspectors in the past. As the city advances electronic plans files and mobile office systems with paperless reporting as well as enterprise funding systems, it is essential that the entire SSI Division function as a unified team and each group should view the other as a technical resource.

320. ***Recommendation:*** **Add an "Administrative Supervisor" position to report to and assist the Division Manager**

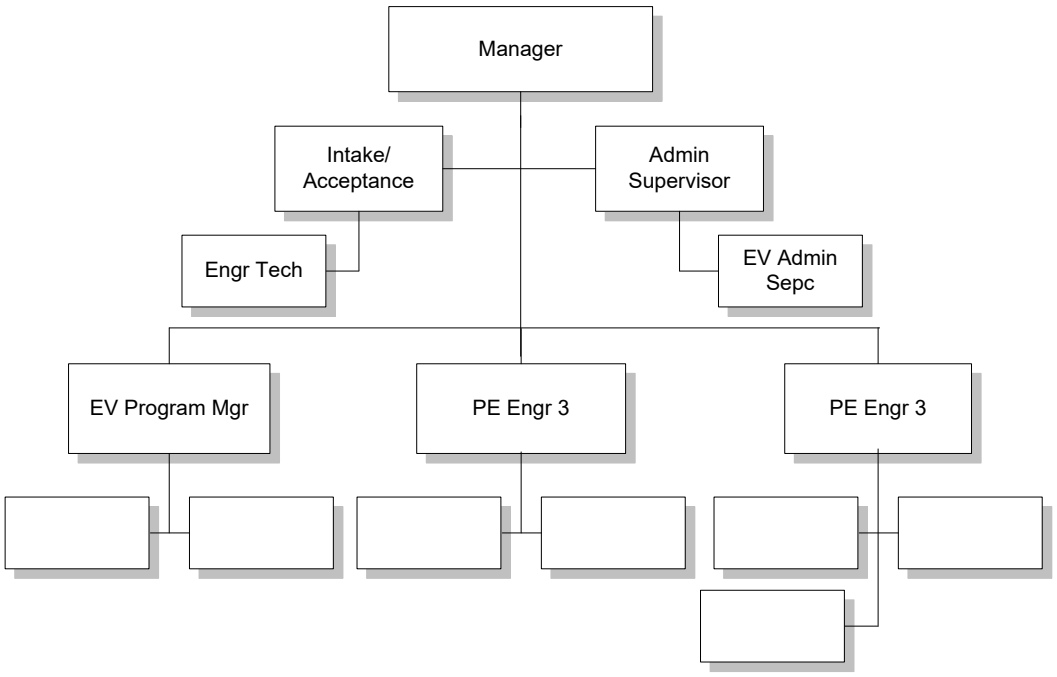
321. ***Recommendation:*** **EV Admin specialist report to the Administrative Supervisor position recommended above.**

322. ***Recommendation:*** **The division manager should delegate increased levels of technical decision making authority to the key supervisors in SSI while increasing his focus on the management of the entire division.**

The SSI division is fortunate to have its top level supervisory staff with long term experience, professional qualifications including licensed engineers and staff with professional environmental certification. It is particularly important at this time that the management staff improve and narrow its focus on the management and administration of the division to assure that it does not fracture into separate specialists groups or silos. The existing organizational structure is at risk for this to occur.

323. ***Recommendation:*** **The direct report management team for the SSI Division, reporting to the Division Manager, should include the following: EV Program Manager; Administrative Supervisor; 2-Professional Engineers; and the Intake and Acceptance group supervisor (Inspector "C") for a total direct report management team of 5 staff as shown on the recommended revised organization chart Figure 39.**

Figure 39
Revised SSI Organization Chart



The majority of requests for inspection services are currently being received by an experienced Inspector C in the Intake and Acceptance Group who functions at this administrative staff level in the division. This position is assisted by two subordinate staff. Up to one half of the time of one of the Engineering Techs in this group routinely assists the EV group which is appropriate. Calls for inspection of R/W and excavation work are presently received through an IVR or voicemail system, directly to the supervisor of the R/W excavation inspection group. We believe that having a central staff as a focal point for all incoming work is a good system and should be reinforced. While the IVR calls are sent directly to the ROW inspection supervisor, the Intake and Acceptance group should be simultaneously notified of all ongoing requests for service. It assures that the SSI manager is able to be properly advised that work assignments and distribution are being tracked and that all incoming work for both environmental (EV) and infrastructure can be accounted for.

324. ***Recommendation:*** **The SSI manager should confirm that all incoming work requests and all calls for inspection for both EV and all infrastructure including R/W excavation are focused thru the Intake and Acceptance work group.**

325. ***Recommendation:*** **The incoming work group should be shown at a "staff level" position as shown on the recommended revised organization chart, Figure 39.**

Office Reporting For Field Inspection Staff

The SSI Division operates from three separate office locations in Austin. They include the main office at One Texas Center (OTC), Kramer Lane office, and St Elmo office. While there is some limited geographical justification to have the three different locations, it appears that office space, and other expedient criteria are the reasons for these separate locations. We have visited all the SSI Division offices and have concluded that they do not serve the efficient operations of this division. The offices at St. Elmo and Kreamer Lane are leased space from other city departments. They are cramped offices with a number of apparent barriers to effective communications and good working conditions for the SSI staff. The OTC offices have been "filled in" to available space by the inspection staff mainly on the 3rd floor, but with no apparent plan to accommodate this organization and its primary field operation.

Austin obviously covers a large geographic area and inspection assignments are generally divided by the North, South, and central core of the city. While there may be geographic justification for satellite offices we have noted that the environmental inspection group within SSI covers the entire city from the OTC office.

Relocation of PDRD to a more user friendly location has been recommended in other sections of this report. While SSI currently operates in three separate offices consideration should be given to evaluating if it could operate more effectively from a single office location situated with the entire PDRD Department. SSI does not need to be on a ground floor location however parking for the inspector's vehicles needs to be assured. Consideration should also include assuring that SSI and Land Use Divisions are co-located in the same office to enhance communications between those two key divisions.

326. ***Recommendation:*** **SSI Division management team should evaluate whether or not it is beneficial to continue its operations from three separate offices compared to single office reporting location for the entire staff.**

327. ***Recommendation:*** **Concurrently with the recommended processes to relocate PDRD to a more user friendly office location include consideration for bring the SSI Division into the same location.**

Staff Meetings/SSI Division Communications

The Division Manager holds a bi-weekly staff meeting at the main office, "One Texas Center" or OTC. Attendance includes the Supervising Professional Engineer and Inspectors. We have been advised that the EV Program Manager does not routinely attend this meeting. We were not able to observe this meeting, but have been advised by the Manager that a typical meeting takes 1 to 1-1/2 hours, includes a review of active project details as well as time set aside for staff training. No formal agenda or minutes of these meetings are kept to track assignments or follow up on specific issues.

It is our view, and it is a best practice, that a direct report staff meeting can be one of the most effective systems to assure that the division is operating as a team and that critical issues and their resolution do not get lost. The manager can make sure that important information regarding city policies, rules, and other news is passed on to the key management staff in a timely fashion and that they can be held accountable if this is properly documented. This is not a meeting where technical details and their resolution for specific projects need to be discussed unless it is directly related to a policy or significant management issue. Specific project by project issues can usually be resolved by the supervising inspectors and staff outside of this management meeting. This meeting should focus on the overall operations of the division and direct staff training. Attendance to this staff meeting should include the direct report management team recommended above. Key supervisors may be called to attend to address specific policy issues or for training as necessary to facilitate division communications

In addition to the direct report staff meeting the Division manager and the management team should conduct a division wide or all staff meeting on at least a quarterly schedule. A major emphasis for this all staff meeting should include communicating department and division policies, news, recognition of staff accomplishments, staff feedback, and training. Many cities that we have observed have all staff meetings during a "brown bag lunch" period. Training can include topics ranging from updates on the "Rules", detailed construction methods, environmental code, and safety as well as training for personnel evaluations and other supervision matters. A good method can be for the Division manager to assign topics for training to individual supervisors to lead the training session at a subsequent meeting.

The Site and Subdivision Divisions should continue to hold its bi-weekly direct report staff meeting and the direct report management staff should regularly attend. Meetings should include the following:

- Have an agenda available one day in advance of the meeting along with the minutes or summary of the previous meeting; and
- A minimum of 15 minutes should be devoted to management training at each direct report staff meeting.

328. ***Recommendation:*** **SSI staff meetings should include items outlined above.**

329. ***Recommendation:*** **The SSI division should conduct a division wide or "all staff" meetings on a quarterly schedule to provide important city information, feedback, and training.**

Inspection

The Site and Subdivision Division organization has been evolving over a number of years including an effort to bring as many of the city's construction inspection operations into this single division as possible. The "One-Stop-Shop" concept, which is discussed in other sections of this report, was part of this consolidation effort.

One group transferred from the Water Department or Austin Water Utility (AWU) had been labeled as the "Tap Inspection" group and under this report is now designated as excavation inspection group. This was their designation in the Water Department as it was exclusively associated with the inspection of connections to existing water and sewer lines. The "Tap" name is no longer an appropriate title for this group inasmuch as their assignments have extended beyond what the responsibilities were within the AWU. In addition to our previous recommendations related to the "One-Stop-Shop," it is timely that the reference to "Tap" has been deleted from this Site and Subdivision Inspection (SSI) group title. The "Tap" designation also is shown within the Land Use Review and other divisions of the Department. "Utilities" inspection may be a more appropriate description for similar groups and teams working on plan review and inspection tasks.

330. ***Recommendation:*** **Reference to "Tap" designation from the PDRD organization should be deleted to properly reflect their actual assignments.**

Vehicle Use, Storage, and Safety

Vehicle and transportation requirements for SSI vary based on the type of inspection, the terrain and whether off road use is necessary. For example new subdivisions or sites may be developed where no road access is initially available. Vehicles with good ground clearance such as an all-wheel drive SUV or pickup truck is appropriate. Other projects and locations where access on paved roads exist can be served with an ordinary sedan or small SUV. All vehicles used by SSI should have sufficient electrical power connections

to accommodate the necessary equipment for communications and the recommended mobile paperless operations. SSI also has a boat used to conduct environmental inspections along the shoreline of Lake Austin.

We have observed vehicles in use by SSI that were well beyond a reasonable service life and could actually be unsafe to operate. One such vehicle was reported to consistently have a leaking propane fuel gas regulator that often fails. In an earlier chapter of this report we discuss the purchase of vehicles. Hopefully the vehicles we noticed will be replace as part of the current new vehicles. If not, SSI management should point this out to PDRD management for correction.

Safety in field operations, particularly when inspections are being conducted in areas where heavy equipment is operating, is an important responsibility for SSI. In addition to specific training sessions for safe vehicular use, it is important that each field supervisor conduct safety training and advisory sessions in the field on a regular and frequent schedule. These sessions, commonly referred to as "tailgate meetings" have proven to be one of the best methods to avoid and prevent accidents in the field. A typical tailgate safety meeting can be conducted in less than 30 minutes and can be tailored to the specific conditions to each individual project.

The SSI vehicles are currently parked and stored at the office where each inspector reports for work or at a designated public facility such as a fire station. Depending on where the employee lives and where the work assignments are there may be good reason to allow the location for overnight or off hours parking to be at places other than the three offices currently in use. If the Department consolidates it operations to a single office there will still be a need to arrange for secure parking at different locations within the City. A good fleet management system must also still have reliable access to all vehicles under management in order to assure timely maintenance and good safety for the equipment.

331. ***Recommendation:*** **SSI supervisors should conduct "tailgate safety meetings" on site and upon the initiation or commencement of each new project and on a regular schedule thereafter.**

332. ***Recommendation:*** **HR department should develop a set of policies, with advice from the operating divisions, for city inspection vehicles including watercraft that accounts for specific inspection transportation needs, parking and storage, maintenance, repair and replacement schedules, service life and safety, and other fleet management considerations.**

Workload and Staffing

Table 68
SSI Inspection Workload and Performance

	2011	2012	2013	2014	2015**
FTEs	60	58	58	62	63
# projects/$value (**FY14 -infrastructure only**) – nic. EV)	231	310	333	**300/$110M**	330
# Environmental inspections incl, landscape (EV)	39,552	40,269	36,330	40,902	45,000
# landscape only inspections(EV)	1,692	1,909	841	1,800* 539 Rev	600
% residential sites receiving environmental (EV) inspection	80%	92%	87%	94%	65%
% Commercial sites receiving environmental inspection (EV)	94%	96%	92%	92%	90%

** 2015 FY forecasts as currently estimated by SSI

*2014 revisions to landscape discussed below

There are 34 field inspectors working under 5 supervisors directly responsible for inspecting infrastructure and ROW permit projects in the field. A total of 300 infrastructure projects were active during the course of the FY 2014 with a combined value of approximately $110 million. Simultaneous environmental inspection (EV) work included approximately 41,000 individual inspections with a total field staff of 19 inspectors and supervisors. Roughly 90% of the 300 infrastructure projects included EV inspections in addition to structural and engineering inspections.

These gross or overall statistics do not completely allow an effective measure for individual personnel workloads or performance. While the gross number of projects listed above provides some insight to the overall workload of this division, there are numerous factors that should be considered to arrive at an effective staffing level.

Discussion in the Process Issues section of this chapter will expand on methods and factors that can be utilized for staffing and workload determination. The various factors include project complexity, cost, and concurrent workload to name a few. If PDRD evolves to an enterprise type system supported by fees collected for development review and inspection it becomes increasingly important to have workload measures and statistics to evaluate individual staff performance within the division. Workload and

corresponding budget(s) for staff and support can only be developed with accurate and detailed development project information. We have seen some work in progress by the division management team that is currently developing more detailed statistical, cost, and project complexity information that can lead to a reliable budgeting and staffing analysis in the future.

SSI Manager advised us that the FY 2015 estimate of 330 for infrastructure projects was based on an extrapolation of the rate of increase observed in the SSI division. This very rough estimate is not an adequate method to derive such an important projection of future workload. The projected workload described in this report for the Land Use Review (LUR) division suggests that the inspection forecast of 330 projects may be low (not all site plans will require SSI inspections but will require CIP inspections and EV inspections). A more integrated and coordinated overview of projects flowing through the city via the Land Use Review division to SSI division should be utilized for forecasting the SSI workload and staffing resources necessary to accommodate that demand. Inasmuch as the majority of the EV group workload is directly related to the number of infrastructure projects a more accurate forecast can be derived for the entire SSI division when incorporating the data from LUR. There are tables with pertinent data in the Process Issues of this chapter illustrating important considerations that should be used by SSI management to determine a more reliable estimate of future staffing needs. While these data systems to evaluate staffing requirements are important, the more immediate needs to respond to demands for inspection services is still missing in the SSI Division.

The addition of field staffing for large divisions such a SSI demands careful consideration of current and projected future workloads including analysis of the varied specialty and technical requirements. Quite often a new project may impose a requirement for specialized inspection or simply additional staffing because of the volume of work.

It is a best practice to have consultant or contract staffing on call to accommodate this variability. We have found that well balanced development review and inspection organization have a portion of their staff team filled with contract/consultant staff. The city has in place an effective procedure and policy to retain materials testing laboratories staff on a rotation basis. It would not be difficult to use a similar system to retain third-party contract staff selected by PDRD to serve in the SSI Division. Categories of expertise including heavy construction, environmental, utilities including water and sewer, among others can be incorporated into an “On Call” team of inspection staff. Such a system can also allow for the immediate replacement of vacancies that occur such that minimal time is lost in the progress of inspection for work currently underway. The time necessary to recruit and retain permanent staff can take several months, and this kind of delay is not acceptable to assure complete and ongoing inspection of projects underway. Last but not least the addition of specialized staff expertise may also serve to help resolve existing issues between the Water Utility (AWU) and PDRD inspections. Please note that the field inspection staffing is the focus of this discussion. The previous

recommendations in this report that pertain to the addition of the Professional Engineer and the Administrative Supervisor must be done notwithstanding this discussion of workload analysis.

While we have recommended that SSI develop a more concise method to forecast staffing requirements, that methodology focuses more on expanding workload and the concurrent accommodation to growth. It is marginally effective when the inevitable downturn or reduction in demand occurs. When staff reductions are necessary it is much easier to respond to that reality when a portion of the workforce is retained on a contract basis.

333. ***Recommendation:*** **SSI Division immediately develop a scope of services and listing for technical specialties necessary to develop an "On Call" consultant contract field inspection staff and work with the Contract Management Department (CMD) to solicit, vet and retain an "On Call" contract or consultant inspection staff.**

334. ***Recommendation:*** **Staff additions for any and all new field inspection staff including construction and environmental work be implemented through the above described "On Call" system prior to retaining any new permanent full time field inspection staff.**

335. ***Recommendation:*** **SSI Division management should conclude the development of workload and project data including cost, complexity, in order to forecast project volume relative to staffing levels prior to August 1, 2015.**

336. ***Recommendation:*** **SSI Manager should utilize data pertaining to projects being processed in the Land Use Review Division as a significant factor to help forecast upcoming SSI project workload.**

D. POLICY ISSUES

Laboratory and Testing Services

All construction and materials testing conducted for project work in progress is performed with contract laboratory services by several different laboratories in the city. The labs are selected and contracted by the city through the general services Contract Management Department (CMD) with advice from Public Works. Administration of specific assignments of the contracted labs for materials testing work is then handled by

the Public Works Department. In general this system is consistent with a best practices approach to assure that new construction is conforming to the "rules" or city standards. It is reported that there are fourteen different labs that are approved to conduct sampling and testing in Austin on a rotation basis. Use of specialized materials laboratories is an economic and effective approach to assure that construction materials and their placement conform to city standards.

The Public Works Department assigns or designates the lab to serve for all development projects after a request is received from SSI. It has been reported that there are delays of more than a week after a lab is requested by SSI to serve on a new development project. Once a lab has been designated, it appears that response times for actual testing have been satisfactory. The Public Works Department uses the same labs for materials testing on its capital improvement projects (CIP). While it is appropriate that the supervision of this important contract service for CIP work be within the PW Department, the lab services for new development should not take a lower priority than city capital improvement work. The Public Works Department is responsible to operate and maintain the infrastructure requiring testing whether it is constructed by a capital project or new development.

We have reviewed the city's policy and procedure pertaining to the selection and assignment of consulting lab services. The policy is well suited for city CIP and engineering work. It is oriented specifically for those projects and the typically longer lead time they have available to prepare. However, the policy and process does not work in a timely manner for retaining and assigning consultant materials laboratories for development projects which necessarily must have those services on short notice.

While the same laboratories may perform the testing services required, and the actual tests are the same for both CIP and development work, the lead time needed to retain and assign consulting labs for those services does not exist with active development projects. The city and SSI should have the services for materials laboratories available on less than 5 working days' notice for assignment to a new or start up development project, and same day or less than 24 hrs. notice for ongoing or continuing work. While the selection of eligible firms by CMD to do the work can essentially remain the same it may be appropriate for PDRD to be able to directly administer the assignment of materials laboratories to specific development projects.

337. ***Recommendation:*** **Modify the city policy/procedure to include consideration for PDRD to assume responsibility to assign qualified materials testing laboratories for development work inspected by SSI.**

338. ***Recommendation:*** **Assignment of a qualified materials testing laboratory should be completed and laboratory staff prepared to respond to a preconstruction conference within 2 working days of a contractors request for service.**

339. ***Recommendation:*** **Materials testing laboratories should provide same day testing for calls made prior to 10 am and next day testing for calls after 10 am.**

Mission Statement and SSI Webpage

There is not any mission statement posted on the web or within other documents that we have reviewed for the SSI Division. If a mission statement exists it should be reviewed and updated and posted on the city web site. The web page for SSI also has an outline description of a typical inspection process along with some specific details pertaining to water department facilities. It should include flowcharts of the inspection process and what information/forms are necessary in order to pass inspection at each point. Because this group inspects a variety of permit types, it can be very confusing and difficult for people unfamiliar with the Austin process to understand it. In accordance with recommendations in this report that publication will require amendment and updating.

340. ***Recommendation:*** **Update the SSI webpage to include a mission statement and correctly detailed descriptions of SSI inspection procedures and policies.**

Plans Corrections During Construction

We have received information and concerns related to incorrect standards or rules complicating the plan approval and ultimately the construction of public infrastructure by new development. Rules updates and related issues have been discussed in other chapters of this report. On a frequent basis inspectors in the field have discovered that the approved plans include the wrong standard or rule for a given improvement or that there are incomplete construction documents. At the present time existing policy and practice requires that the project be halted and the issue resolved by the design engineers and plan checkers before the work is allowed to proceed even if the variation is a minor one. SSI

does “not have authority” to allow any deviation regardless of the circumstances or the nature of technical issue involved.

SSI inspectors and engineers are experienced and qualified to make appropriate judgments in the field. We believe that in many cases minor modifications should be permitted without having to re-cycle the plans and unreasonably delay the work at hand. Previous discussion in this report describes a culture including a lack of trust and a history of employees unable or unwilling to exercise their judgment which can cause work to bog down. SSI staff should be empowered to exercise their qualified judgment to permit appropriate variations or adjustments during the construction of approved public infrastructure that is in progress in the field. It should be the determination of the SSI professional engineers (with more than 65 total years of experience between the professional engineer and the manager) whether to approve changes or if the project should be held until plans are corrected through the Land Use Review Division and the design engineer.

341. ***Recommendation:*** **PDRD Director to authorize SSI to exercise appropriate engineering judgment during construction of public improvements in the field to allow modifications and changes to correct errors on the plans and/or field conditions encountered on the project.**

342. ***Recommendation:*** **SSI shall properly record and document any plan changes or deviations, through AMANDA, authorized in the field by the Division Manager and advise the Land Use Review division of the same.**

Policies and Procedures Manual (PPM)

We have reviewed several flow charts describing step-by-step procedures for the conduct of field inspections. The list includes Site-Sub Inspections Intake, Driveways and Sidewalks Inspections, Site-Sub Closeout, Site-Sub “TAPS” Inspections, Environmental Inspections, Site-Sub Utility Cut Inspections, Subdivision Inspections, Austin Water Utility Inspections, and Public Works inspections. While many of the procedures described in these documents are generic and typical for this type of work, they are all out of date with some 10 years old or older. The documents are pdf files that are not maintained by the SSI division. The SSI division needs an up to date Policy and Procedure Manual (PPM). The manual should be comprehensive and include all policies and procedures necessary for the effective management of SSI in addition to those listed above.

343. ***Recommendation:*** **The manager and the direct report management team should complete a comprehensive PPM with up-to-date flow charts and procedures for the SSI Division.**

Response Times/Calls for Inspection

SSI reports that 90% of calls for inspection are responded to within 24 hrs. of the service request. There is not any automated record to verify actual response times to inspection requests. Incoming requests are received by the intake and acceptance staff and, in the case of R/W encroachments or permit work, through the IVR voicemail and AMANDA system. Management of the response time to service requests can be an effective tool to assure that the systems and processes within SSI are keeping up with demand. Requests for service and response times are not currently well documented. We have found that it is a best practice to have calls for inspection service through an automated system in a manner similar to building inspections.

Calls or requests for inspection services are typically initiated by a contractor to the SSI Division Intake and Acceptance Group responsible for assigning work. SSI makes a good effort to respond to all calls within a 24 hr. period for routine or ongoing projects. This isn't a sufficient amount of time to respond to a request for services to a new or startup project. While SSI makes every attempt to respond as quickly as possible to help set up inspection for a new project the lack of advance notice often makes it difficult or impossible to fully respond in that 24 hr. time frame except to acknowledge receipt of the request.

Calls for inspection for ongoing projects are typically received by the field inspector or supervisor directly from the contractor. This is expedient and advisable as long as the request is properly recorded in AMANDA and the Intake group is notified. Because project records are presently being recorded in a manual diary and electronic data systems are not being used in the field there is not any reliable management control once a project is underway. This is not to suggest that the field staff is not being diligent, but it does not allow the manager to have a good overview of the ongoing work in progress except by verbal reports and inadequate documentation.

After the project is assigned to an inspection group, the responsible inspector will set up a preconstruction meeting with the contractor, appropriate department representatives, and key inspection staff within the Site and Subdivision division as soon as possible. The timing for the "pre-con" meeting obviously depends upon the ability to schedule the time for the key participants. We have been advised that the pre-con meeting is generally held within a week of the initial call from the contractor.

The IVR or voicemail system for permit work has experienced difficulties including the necessity to translate voice calls to written work orders and the AMANDA system. The IVR process is currently used only by the utility inspection group. Often calls to the designated city number are not related to requests for inspection but are for other city services. This also causes staff to divert time to properly redirect those calls. Calls or requests for inspection services that come in directly to the SSI staff associated with the majority of infrastructure work are often received when the planned work by the contractor is set for the next day. This typically isn't a problem with the R/W permit work, but SSI is placed in the position of having to scramble to find appropriate staff and schedule their resources with short notice for new infrastructure projects. The IVR/AMANDA system is fundamentally an effective method to receive and manage inspections for R/W permits and franchise utility work. It could be improved if there was a separate dedicated phone line and number that is dedicated for that purpose.

Part of the process to move to a total paperless system includes the need to augment and integrate the voicemail/written request for inspection process. It will take some time to complete all the changes necessary to accomplish this task. We suggest that the changes to a paperless operation for all inspection calls take place during the course of the current (2015) fiscal year.

344. ***Recommendation:*** **The SSI Division formally adopt the policy that calls for inspection services for a new project acknowledge the request within 24 hrs. and advise all participants of a pending pre-construction meeting within 48 hrs. of the initial request.**

345. ***Recommendation:*** **When a project is approved by the Land Use Review division and a permit is pending, the issuing division (LUR or permits) should automatically forward an advance notice with detailed project information to SSI Intake Group.**

346. ***Recommendation:*** **SSI should incorporate an automated reporting system compatible with previously recommended internet based systems to monitor response performance to calls for inspection.**

347. ***Recommendation:*** **The calls for inspection system should include an internet based request process in addition to the existing IVR system and set a goal that all calls for inspection evolve to the internet based request system(s) by the end of FY 2015.**

348. ***Recommendation:*** **SSI should adopt a formal policy to set a date/time for pre-construction conferences within 5 working days of the contractors request for inspection services.**

349. ***Recommendation:*** **Implement a new and separate dedicated phone line and number for the IVR calls for R/W and permit inspection services.**

E. PROCESS ISSUES

Communication/Cooperation and Interdepartmental Relations

The SSI Division must necessarily interact with all the city departments that will ultimately own and operate the various public infrastructures under construction by private development. It is important that SSI acting as an agent for the different departments have the trust and confidence of the operating department. The level of trust of the PDRD SSI Division varies. For example Public Works appears to have confidence that the division is doing a very good job of inspection for the streets and other facilities that are ultimately operated by the PW Department.

At the other end of the trust and confidence scale the Water Dept. (AWU) and Electric Utility (AE) appear to be unwilling to rely upon SSI to fully represent those departments. Each department is functioning within its own silo. The result is an extraordinary level of documentation, dual inspection, and unwillingness by the other departments to delegate important decision-making authority to SSI and PDRD. This frequently results in delays to the progress of construction of public improvements and overall delay to the associated development project. The "One-Stop-Shop" concept was supposed to have alleviated this conflict, but while some staff transfers were made the operating departments have been unwilling to delegate appropriate authority to PDRD. It is likely that this issue will require involvement by the City Manager.

While it is understandable that each department having the ultimate responsibility to operate the infrastructure in question needs assurance that it is being constructed to the established city standards and "Rules", it is our view that the SSI Division can in fact be the qualified agent to inspect and confirm that construction by private developers is being done in accordance with the plans, specifications and city rules. This can be achieved if the departments and PDRD Divisions make a truly good faith effort to clear the barriers to develop mutual trust and confidence that all are working in the best interest of the city. In other words a process to break down or remove the "Silos" mentality is essential.

We have found that when a "Partnering Process" is utilized resulting in a concluding agreement many of the silos and barriers to interdepartmental cooperation can be resolved. Partnering is a process commonly used within the construction industry to facilitate the resolution of interagency conflicts. A professional facilitator typically serves to conduct meetings and encourage the parties to describe or place all the conflict issues and paradigms on the table for discussion. The facilitator then serves to mediate and help both sides arrive at an agreement and ultimately a more formal MOU. The formal agreement (MOU) to document the mutual understanding is an important part of this process. Last but not least PDRD should consider including the Land Use Review Division and SSI Division jointly in any process to resolve many of these disputes with the other city departments. PDRD must have its divisions, especially Land Use Review and SSI, mutually functional preceding interaction or partnering with other city departments

350. ***Recommendation:*** **Site and Subdivision (SSI) and Land Use Review (LUR) Divisions should meet and participate in a Partnering Process to assure that there is full trust and confidence that the two divisions are functioning as an effective team within PDRD. This should take place as a precursor to subsequent Partnering and meetings with the other city departments.**

Earlier recommendations in this report say that all infrastructure inspections should be solely within PDRD.

351. ***Recommendation:*** **Initiate a "Partnering" process utilizing a professional facilitator, with each of the other city departments impacted by new development starting with the Transportation and Public Works Departments and subsequently including the Watershed Protection and Water Departments. At the conclusion of this Partnering process execute memoranda of understanding (MOU) to assure clear authority and responsibility of PDRD to act on behalf of those city departments when approving plans and inspecting construction of the city's infrastructure.**

Inspection Process

The landscape inspection process in the SSI division is described in Table 69 and is included here to help illustrate the general overall process for inspections. The process and administrative work described below is similar in many aspects for most types or disciplines of inspection work. While details vary for the different types of improvement, each inspection discipline is required to verify the applicable plans and permits and then

to visually inspect the work to assure conformity. The multi-step process includes research of plans, rules, and specifications followed by field inspection verification, issuance of corrections if necessary, and to document and report findings. A more detail listing of the SSI inspection step by step process is posted on the web site, however it needs to be updated.

Please refer to Table 68, "SSI Workload and Performance", and note the revision to the landscape report. In the past a landscape inspection was tied to every building permit associated with a project. That meant a new high rise with 20 floors would have a have one shell building permit and 20 finish out building permits each with a landscape inspection. Using that method 21 landscape inspections was listed in the AMANDA operating system would be counted as 21 inspections on the work logs. This would be the same for a condo regime for example. There may be a structure that has 8 condos built all at the same time that is one large building. There would 8 different building permits and 8 different landscape inspections to clear. This example is described to also reinforce our recommendation that the posted process needs to be updated.

Table 69
Landscape Inspection Process

1. Before a landscape inspection can be requested the inspector must receive a Landscape Concurrence letter from the Landscape Architect associated with the project or other design professional.
2. At the time of inspection the client must provide a completed "Irrigation Checklist" by the irrigation installer. They must provide the most current landscape plans from the City of Austin submittal set for reference and comparison to what has been installed.
3. Perform the inspection. The inspection consists of making sure all trees and shrubs are in the correct location (i.e. in the street, yard, parking islands, screening). Verify the correct quantity of trees and shrubs. Verify the irrigation system is in correct working condition (i.e. pressure is correct, no spraying on to hard surfaces, correct coverage). Visually inspect irrigation controller, check for installers information, zone map and chart, and rain sensor.
4. If the client only requires a Temporary Certificate of Occupancy (TCO) for landscape, they must request it. No inspection needed or fiscal posted for TCOs.
5. If landscape is not finished and client requires a Certificate of Occupancy (CO), they may request a Developer's Agreement. They must provide a detailed cost estimate for landscape materials and labor for the remaining landscape. They must provide detailed cost estimate for the irrigation materials and labor, as well as a detailed irrigation plan produced by a licensed irrigator.

Mobile Offices and Paperless Systems

A limited use of paperless and online systems by some of the inspection groups such as ROW encroachment and Environmental Review, within the SSI Division does exist. However for the majority of the work being inspected, individual inspectors are using the same systems that were common prior to computerization now being used by many public and private agencies. Inspectors are required to maintain a hand written diary for each and every project that is assigned to them. Full size plan sets are also carried by the inspectors in their vehicles. The volume of material is substantial.

We understand that the city is making an effort to improve and increase the use of web based and online systems for field personnel. There have apparently been some attempts to utilize laptop computers by inspection staff, however we have many reports that they are cumbersome to use, require extensive log in procedures and that the log in frequently expires. The AMANDA system, while a powerful tool, is also not user friendly in its current configuration for field personnel. Inspection staff should also be able to communicate directly from the field with the plan review staff to discuss particular issues that may arise during construction.

We clearly understand that there are and always will be the need for an inspector to occasionally have full size plan sets available for some projects. There are many instances where full size plan sets are unnecessary such as with less complex and smaller projects. Moreover the daily reporting diary for each project can and should be done completely independent of paper based reporting.

Contractors should be responsible to have complete full sized plan sets on the job site that are certified as approved plans for the inspector to use when necessary. The same plans can and should be available to each inspector via an online system that allows viewing on a tablet type computer. That same tablet can be used to photograph and document project work and progress as well as allow the insertion of the inspectors daily written report, time sheet, and detailed notes pertinent to a given project.

Discussion in the IT section of this report describes the overall need plus the near term availability to bring field inspection to fully mobile and paperless systems. SSI, particularly the major infrastructure groups, are still relying on out dated paper systems. It is essential that the entire division uniformly incorporate the IT systems as described in the IT chapter as soon as possible.

352. ***Recommendation:*** **Require all developers and their contractors to have up to date certified approved full size plan sets available on the job site for inspectors use in the field.**

353. ***Recommendation:*** **SSI Division should proceed with implementation of a complete automated and integrated mobile paperless systems as a high priority objective and at the earliest possible date including the use of tablet computers and compatible mobile smart phones with individual numbers and texting capability, for each inspector properly linked to the city's plans and development information database that is user friendly for field personnel. Set a goal to complete this conversion to paperless systems as early as resources allow. Terminate the use of hand written project diaries at the same time.**

Staff and Budget Allocation Systems

The table below illustrates a total number or projects inspected by the SSI Division for each of the fiscal years noted. For example infrastructure work such as streets, storm drains etc. associated with either a subdivision or a site improvement amounted to 300 separate projects during the FY 2014. SSI Management currently estimates 330 projects for the 2015 fiscal year. While this table illustrates the summary total of the number of projects it is not useful as a true measure of the workload for individual staff or groups in the division. For example the size and scope of projects inspected vary greatly. Some projects have a construction cost exceeding a million dollars and others may be only a small street improvement associated with a new or reconstructed commercial site. The work of the ROW permits group is not included in this table.

Table 70
Performance Measures Site/Subdivision Inspection

	2011	2012	2013	2014	2015**
FTEs	60	58	58	62	63
# projects/$value(FY14 -infrastructure only) –nic. EV)	231	310	333	300/$110M	330
# Environmental inspections incl, landscape (EV)	39,552	40,269	36,330	40,902	45,000
# landscape only inspections (EV)	1,692	1,909	841	1,800* 539 Rev	600
% residential sites receiving environmental (EV) inspection	80%	92%	87%	94%	65%
% Commercial sites receiving environmental inspection(EV)	94%	96%	92%	92%	90%

*1800 revised to 539- new corrected method in place for 2014

**SSI Estimates for FY 2015

SSI during the 2014 year started to maintain a spreadsheet listing the individual infrastructure projects including the construction costs, number of projects, and timing compared with staff levels. A summary of this information is shown in Table 71.

Table 71
SSI Division 2014 Project Valuations and Staffing

2014	OTC 7 inspectors	Kramer Lane 11 inspectors	St Elmo 6 inspectors	Total Value	# Proj.	Val/Field Insp.	Value per SSI Div. Inspect Empl. (64)
Oct				2,042,886	27	85,120	31,920
Nov				3,818,229	17	159,093	59,660
Dec				7,054,930	22	293,955	110,233
Jan				15,392,535	27	641,356	240,508
Feb	*Individual office data not available*			21,090,753	30	878,781	329,543
Mar	2,056,720	7,238,063	592,090	9,886,874	27	411,953	154,482
Apr	4,492,968	5,808,096	2,095,494	12,396,558	27	516,523	193,696
May	2,826,490	10,783,626	257,796	13,867,912	25	577,830	216,686
June	722,324	413,766	1,397,108	2,533,199	20	105,550	$39,581
July	129,380	6,503,217	824,690	7,457,287	23	310,720	116,520
Aug	1,113,488	977,986	3,605,026	5,696,500	30	237,354	89,008
Sept	394,678	3,956,775	4,728,487	9,079,938	25	378,331	141,874
				110,317,600	300	Avg=383,047	Avg=143,643

The calculation of the total value of construction projects on a monthly basis is an indicator of the workload trends in the division. This is an improved overall look at the entire division workload. Another useful tool is to categorize projects on a degree of complexity, which is often in proportion to the cost, and scope of the project. SSI has preliminarily developed a scoring system to help analyze this factor. The Table 72 illustrates alternative scenarios for this system.

Table 72
Project Scoring Matrix Alternatives

Scoring Matrix 1	Scoring Matrix 2
each project = +1	costs < $10,000.00 = +1
costs < $100,000.00 = +0	costs $10,000 - $50,000 = +2
costs $100,000.00 - $200,00.00 = +1	costs $50,000.00 - $200,00.00 = +3
costs $200,000.00 - $500,000.00 = +2	costs $200,000.00 - $400,000.00 = +4
costs $500,000.00 - 1,000,000.00 = +3	costs $400,000.00 - 700,000.00 = +5
costs $1,000,000.00 and up = +4	costs $700,000.00 - $1,250,000 = +7
	costs $1,250,000 - $3,000,000 = +8
completion 85% = total value changes by -1	costs $3,000,000 - and up = +9
completion 90% = total value changes to 1	
completion ≥ 95% = total value changes to 0	completion 90% = total value changes by -1
	completion ≥ 95% = total value changes to 1
	projects with status of on hold, abandoned, or cancelled will be shown as 0

While the above tables can serve as an indicator to assist with the decisions for work allocation, it should not replace the judgment and experience of the manager and key supervising staff when allocating work assignments to the SSI inspection groups. We have previously recommended that data from the Land Use division be incorporated into the methodology to forecast staffing and workloads for SSI. That data from LU plus the information illustrated above can serve to create useful management and budget planning tools for the division.

354. ***Recommendation:*** **Staff and group work assignments system include consideration of the scoring system and project values to supplement the judgment of manager and administrative staff when allocating work to SSI groups and continue the accumulation of the data shown on Tables 70, 71, and 72 above within the AMANDA systems to enable automated monthly reporting of inspections staffing and workload factors and Incorporate similar automated workload data systems within the AMANDA systems for the entire SSI division including both Infrastructure and Environmental groups.**