



FEDERAL PUBLIC SERVICE
MJSP - FEDERAL POLICE
PLANNING AND CONTROL DIVISION - DPC/CGPLAM/DLOG/PF

PRELIMINARY STUDY NO. 36473197/2024-DPC/CGPLAM/DLOG/PF

Processo nº 08200.026345/2023-43

1. **BASIC INFORMATION**

1.1. The purpose of this Preliminary Study is to acquire 6,364 Stand Alone ballistic plates (front and back set), 6,364 modular Plate Carrier ballistic plate vests in Black and 1,854 in Multicam® for the Federal Police.

1.2. This analysis is based on the guidelines set out in the Federal Constitution/1988, Law 14.133/2021 and Ordinance No. 18 of 19/12/2006 / MD - Ministry of Defense, which approves the Regulatory Standards for the Technical Evaluation, Manufacture, Acquisition, Importation and Destruction of Bulletproof Vests, establishing measures that must be observed when carrying out these activities. The analysis is also based on SENASP NT No. No. 003/2021 - Ballistic Protection Vests (Ordinance 281 of May 21, 2021), which addressed the need to adopt new technical parameters for the purchase of future vests for the Federal Police.

1.3. The adoption of the Price Registration System (SRP) over the traditional auction is a strategic and efficient choice for the Public Administration, especially in scenarios of recurring, variable demands or when there is a need to serve multiple units in an integrated manner. The SRP provides significant gains in terms of agility, flexibility, saving resources and reducing administrative costs. The SRP optimizes processes, avoids shortages and makes it possible to negotiate more advantageous prices. The use of the SRP not only modernizes and simplifies bidding processes, but also contributes to promoting more efficient, economical and results-oriented public management.

1.4. The Electronic Auction will use the price registration system as an auxiliary procedure, according to art. 82, Law 14.133/2021, in accordance with the body's planning, and the company must be aware of the possibility of acquiring all the items, offer a proposal for the total quantity, and that the criterion for judging the bid will be the lowest price. The term of validity of the price registration minutes will be 1 (one) year and may be extended for the same period and in the same quantities, as long as the advantageous price is proven. It should also be noted:

- a) The object sought for the future contracting does not fall within the scope of a costing activity.
- b) The goods referenced in this study, given their characteristics, fall within the concept of common goods, as defined in XIII, of art. 6, of Law 14.133/2021, since they have performance and quality standards that can be objectively defined by the public notice, through usual market specifications.
- c) The object of this procurement does not qualify as a luxury good, according to Decree No. 10,818 of September 27, 2021.
- d) The object of this bid does not qualify as ICT goods.

1.5. This acquisition is provided for in the Annual Hiring Plan, according to SEI no. (36347506).

1.6. The object of this bidding process will be divided into an item and a group, where the award criterion will be the lowest price per item and the lowest overall price for the group.

1.7. Justification for grouping items 2 and 3:

I- The grouping of items 2 and 3 is due to the principle of standardization, which is one of the foundations of public administration that aims to guarantee uniformity, efficiency and economy in government contracting. The principle of standardization establishes that the goods and services acquired by the public administration must follow technical specifications and previously defined quality standards, ensuring that they conform to the needs of the contracting body and that they meet criteria of efficiency and durability. The aim of standardization is to avoid harmful or incompatible purchases. Standardization ensures that goods are protected for their intended purpose, avoiding technical or functional differences. This will prevent items with different specifications from being purchased, ensuring uniformity and standardization in equipment throughout the territory where the PF is assigned.

2. **2. GROUNDS FOR THE USE OF THE INTERNATIONAL AUCTION - INCREASING COMPETITIVENESS AND OPTIMIZING THE BODY'S RESOURCES**

2.1. In the discipline of bidding, the Auction ended up becoming the modality of choice for the acquisition of common goods precisely because its competitive phase, by bringing together all interested parties who were previously excluded in the qualification phase, increased the universe of competitors. During the Preliminary Study, it was observed that this expansion of the list of participants is vital for obtaining the binomial best prices/best specifications. What international bidding provides is an expanded list of competitors. It should be noted that the participation of national companies remains unchanged and their isonomy is guaranteed through the equalization of proposals.

2.2. The adoption of international bidding will bring a series of advantages:

- a) Obtaining better prices and conditions: Holding an international tender can allow more competitive prices to be obtained, due to the participation of foreign companies that can offer better commercial conditions. It has been found that the majority of companies in this market are in fact foreign;
- b) Access to advanced technologies: Foreign companies can bring innovative and advanced technologies that are not available locally. By opting for an international tender, it is possible to attract companies with specific experience and technical knowledge for the project in question;
- c) Encouraging competition: By opening up the bidding process to foreign companies, there is an increase in competition, which can result in more advantageous proposals for the public administration. As it has been pointed out that the majority of companies in this market are foreign, holding a national tender with the participation of intermediaries would greatly increase the average price of the tools in relation to the price practiced on the international market;
- d) Specific requirements: This is a technological tool with technical or quality requirements that, in principle, cannot be met by domestic companies alone. In this sense, international bidding is the most viable option to ensure that these requirements are met;
- e) Economy of scale: International bidding can allow economies of scale to be achieved, especially when the contract involves large volumes or when international suppliers have greater production capacity and can offer more competitive prices. In some cases, international suppliers are able to offer lower costs due to greater production capacity, logistical efficiency or tax incentives in their countries of origin.
- f) Stimulating Competitiveness in the Domestic Market: By allowing foreign companies to participate, international bidding can generate competitive pressure on the domestic market, encouraging local suppliers to improve their offers, both in terms of price and quality, in order to compete with international proposals. This can encourage the modernization and innovation of national companies, which then compete with global players.
- g) Supplier diversification: Holding international tenders allows the Public Administration to reduce its dependence on national suppliers, especially in sectors where there is market concentration or few supplier options. This helps mitigate risks related to product shortages, supply interruptions or lack of internal competitiveness.

2.3. Carrying out an international tender requires planning and adapting rules, such as providing for payment in foreign currency, adjustments to customs legislation, compliance with international requirements and delivery guarantees. According to Law 14.133/2021, international bidding allows the Public Administration to achieve benefits such as increased competitiveness, access to high quality products and services and technology, cost reduction and diversification of suppliers. This modality expands contracting options and can contribute to the development of strategic sectors by bringing in new

technologies and knowledge from abroad.

2.4. According to the justifications cited in this preliminary study, for these reasons the Federal Police is opting for an international tender.

3. WHETHER OR NOT COMPANIES IN CONSORTIA AND COOPERATIVES ARE ALLOWED TO PARTICIPATE

Consortium

3.1. In order to admit or not the participation of companies in consortia, it is necessary to consider how the goods to be purchased are supplied. Participation in a consortium is normally of interest to the buyer/contractor when the proposed solution is complex and does not appear as a stock item, but is a solution to be built in which the parts that make it up are supplied by different market players and these represent representative portions of the whole and these portions need to be received in an integrated and simultaneous manner. The technological and knowledge transfer content is also verified in the formation of consortia for the acquisition of complex police/military solutions. Another approach that recommends consortia is that of economy. Every time a company hires another company to carry out part of an object, it adds profit and taxes to the amount charged to the Administration. This is why subcontracting should normally be allowed at a reduced percentage compared to the total value of the contract.

3.2. Another reason for admitting companies in consortia is to increase competitiveness. In complex solutions, only a few companies are able to offer the solution in its entirety. In the case in question, the items to be purchased are common market goods, which is why the participation of companies in consortia will not add benefits to the same extent that their admission will add complexity to the procedure.

Cooperative

3.3. In order to guarantee the regularity, quality and safety of the services provided by the Public Administration, we cite some of the main reasons for prohibiting the participation of cooperatives in this tender:

- a) Control and accountability: By prohibiting the participation of cooperatives, the Public Administration seeks to avoid the difficulty of control and accountability for the services provided. Cooperatives are made up of associate members, and the turnover of cooperative members can the stability and continuity of the services, making it complex to define responsibilities in the event of failures or problems in the execution of the contract.
- b) Legal certainty: The prohibition avoids ambiguous situations and potential legal questions, since cooperatives have a peculiar nature and are subject to different rules compared to other forms of business organization. By allowing cooperatives to participate, there could be conflicts of interpretation over contractual rights and duties, affecting the legal certainty of contracts.
- c) Guaranteeing the quality of services: Hiring services with exclusive dedication of labor can be sensitive, requiring the selection of qualified, stable and committed professionals. By prohibiting the participation of cooperatives, the Administration seeks to ensure that the contractors are companies incorporated as businesses, with the structure, history and capacity to offer the specialized labor required to fulfill the contract.
- d) Compliance with labor and social security obligations: Cooperatives may face difficulties in ensuring full compliance with labor and social security obligations in contracts with exclusive dedication of labor. The risk of default could be transferred to the Public Administration, which is undesirable and detrimental to both parties.

4. NON-ADMISSION OF QUOTA FOR SMALL AND MICRO COMPANIES

4.1. 4.1. No quota will be established for EPP/ME, based on item III of art. 49 of Complementary Law no. 123/06, because the differentiated and simplified treatment for micro-enterprises and small businesses is not advantageous for the Public Administration, as it could jeopardize the overall complexity of the object to be contracted, and there are losses in this dynamic when different products are used, with different suppliers.

4.2. A quota of up to 25% (twenty-five percent) of the item will not be provided for contracting micro and small businesses, as established in Article 48, item III of Complementary Law No. 123, of December 14, 2006, amended by Complementary Law No. 147, of 7, NoAugust 2014, as received by Article 4 of Law . 14.133, of April 1, 2021, given that there are no three competitive suppliers classified as ME or EPP based locally or regionally and capable of

complying with the requirements set out in this notice, as provided for in Art. 49, item II, of the aforementioned Complementary Law Art. 10, item I, of Decree No. 8.538, of October 6, 2015.

4.3. Subsection I, § 1, of Law 14.133/2021, already establishes the exception when the estimated value of the contract exceeds the maximum gross revenue allowed for the purposes of classification as a small business (R\$ 360,000 to R\$ 4.8 million), however, since it is a price register, it avoids questions with the possibility of contracting amounts that do not fall within the legal provision.

4.4. In short, considering the amount of the contract, which far exceeds the gross revenue limit for small businesses, and in view of art. 4, § 1, inc. I, of Law 14.133/21, the benefits of articles 42 to 49 of Complementary Law 123/2006 will not be applied. There will also be no reserved quota for the preferences of art. 48, III of Complementary Law no. 123/2006, for an additional reason, which is the nature of the object and its technical complexity, in addition to the need for standardization of performance, training, technical assistance and uniformity of the items that make up this bid (art. 40, item V, paragraph "a", of Law 14.133/21), since the differentiated and simplified treatment could be detrimental to the whole or complex of the goods to be purchased, an exception legally provided for in art. 49, III, of Complementary Law 123/2006.

5. DESCRIPTION OF THE NEED

5.1. 5.1. The Federal Police, established by law as a permanent State body, organized and maintained by the Federal Government, and part of the basic structure of the Ministry of Justice and Public Security, has the purpose of exercising the powers provided for in § 1 of art. 144 of the Constitution, and other relevant legal and regulatory provisions, and is designed to

legal and regulatory provisions, and is intended to investigate criminal offenses against the political and social order; investigate criminal offenses committed to the detriment of property, services and interests of the Union or its autonomous entities and public companies; investigate other criminal offenses whose practice has interstate or international repercussions and requires uniform repression, as provided by law; preventing and suppressing illicit trafficking in narcotics and related drugs; preventing and suppressing smuggling and embezzlement, without prejudice to action by the Treasury and other public bodies in their respective areas of competence; exercising maritime, airport and border police functions; and exclusively exercising the Union's judicial police functions.

5.2. Currently, the Federal Police is an institution that enjoys considerable credibility with the population, and is one of the main positive references for state action. However, maintaining these levels of approval and trust necessarily requires measures that enable the police to be properly equipped and identified, in a standardized way, to act in a similar way throughout the country. With the need to modernize the security equipment used by federal police officers, especially given the growing power of war and criminal organizations in Brazil, the Police Logistics Planning and Control Division - DPC, along with other technical sectors of the Federal Police, is continually studying various topics related to the performance of police activities.

5.3. In view of the Standardization Principle set out in item I of art. 47 of the New Bidding Law - NLLC no. 14.133/21, the Administration's primary objective must be to make technical and performance specifications compatible, i.e. the use of a Single Vest, for both overt and covert use, with a single objective of protecting public security agents. The purpose of this principle is to enable the Administration to achieve its goals more economically and advantageously, serving as a tool for rationalizing administrative activity, reducing costs and optimizing the use of resources.

5.4. For the Federal Police to be able to fulfill its institutional missions, it is essential that it is properly staffed with trained and well-equipped human resources. Complete, efficient and quality equipment means not only the success of the mission, but also the protection of the police officer's life. In the various operations carried out by the Federal Police, officers often face situations in which there is a real risk of death, and the ballistic vest is the main individual protection and safety equipment, since it protects the wearer's vital organs.

5.5. The use of ballistic plates and standardized plate carrier vests reduces the risk of death during missions and identifies federal police officers in the performance of their duties, directly contributing to the safety and success of the action. It should be emphasized that visual identification provides the population with positive references about the operations carried out by the institution, and is therefore preponderant for the success of its legal duties and for

strengthening the image of the Brazilian state in the eyes of its citizens. In addition to the safety of police officers, the use of ballistic plates and plate carrier vests in risky operations, many of which involve continuous and long periods of time, must provide the minimum welfare of federal police officers in the performance of their duties, and must include the necessary technology to facilitate mobility and not hinder use due to excess weight.

5.6. The need for this acquisition is therefore due to the fact that, in addition to increasing the level of protection for federal police officers in proportion to the degree of access organized crime has to the different types of ammunition, a large part of the PF's existing ballistic plates, including all the equipment in some specialized units, have expired. It should be clarified that the procurement initiated in 2017 was inefficient (08200.003709/2017-79), since the company that was awarded the contract failed to deliver the goods, and the process is currently in the penalty application phase (08200.003709/2017-79), which implied the need for a new procurement process.

5.7. In view of the above, and taking as a guiding principle art. 35 of Ordinance No. 18 of December 19, 2006, of the Ministry of Defense, which establishes that "bulletproof vests with an expiration date may not be used and must be destroyed", and considering that ballistic plates are considered a type of ballistic protection (restricted-use ballistic vest) as well as the characteristics of the risky activities to which the police officer is subjected, the need to acquire new ballistic plates for use by ordinary PF troops in high-risk situations is apparent.

Technical Basis

5.8. National standards allow and the Brazilian market has different levels of protection: level I, level II-A, level II, level III-A, level III, level IV and special level. These levels follow the regulations of the National Institute of Justice in the United States, notably the NIJ 0101.04 standard, which the Brazilian Army's Technical-Experimental Report (RETEX) uses as a basis.

5.9. The studies presented in the last acquisition, which was frustrated by non-delivery, foresaw the need for a modified level of protection III, standard NIJ 0101.06. This is due to the existence, in the conflicts presented by the tactical teams, of ammunition of the following calibers: 5.56 x 45 mm - 62 gr - M855 (Minimum velocity of 920 m/s and maximum of 940 m/s), 5.56 x 45 mm - 55 gr - M193 (Minimum velocity of 956 m/s and maximum of 975 m/s), 7.62 x 51 mm - 147 gr - M80 (Minimum speed of 838 m/s and maximum of 857 m/s), 7.62 x 39 mm - FMJ 123 gr (Full Metal Jacket) and MSC 123 gr (Mild Steel Core) - (Minimum speed of 700 m/s and maximum of 730 m/s). In view of the need to issue a new call for tenders for the acquisition of "stand alone" ballistic plates, the characteristics of the object to be acquired will be presented.

5.10. In terms of protection, according to the Federal Police's procurement history, the Agency's need is to complement/replace the ordinary ballistic vest with a superior protection system. In the case of the plates, it is understood that the modified Level III NIJ 0101.06 meets most of the high-risk cases faced by the Federal Police in their work. As for the use of NIJ 0101.06, this is a standard that has been published for more than 10 years, so it has already been consolidated on the world market. The departure from NIJ 0101.04 is due to the fact that it has been published for over 20 years and does not reflect the reality of current conflicts. It should be noted that the level of ballistic protection required for previous purchases was level III in accordance with NIJ 0101.04, and that the unsuccessful one already required a modified level III in accordance with NIJ 0101.06, based on studies by the Technical Area, in accordance with the technical opinion of the SAT (14776926).

5.11. The international market is able to supply items compatible with NIJ Standard 0101.06, with the technical possibility of supplying ballistic plates along the lines required by the Federal Police.

5.12. With regard to the discussion about replacing NIJ 0101.04 with NIJ 0101.06, the content of SEI Technical Note No. 9839038 in item 3 is considered relevant, in which the need for normative evolution was demonstrated, since, among other things, 04 has already been published for more than 20 years. The SAT Technical Opinion (14776926) dealt with the criteria that should be adopted by the Federal Police when defining and standardizing the minimum characteristics that should be present in the personal safety equipment of federal police officers, presenting technical information and the history and legislation that governs the subject. In this note it is quoted, in verbis:

"With regard to the level of protection, it has been observed in exchanges with other police forces that there is a great difference between the DPF's current ballistic plates and those used by other public security units. The DPF's ballistic plate, which is level 4, provides protection against .30 caliber shots, weapons that are still rarely found in the hands of Brazilian criminals. What's more, it is very small in size compared to other ballistic plates observed, as well as being

heavier and thicker, which makes movement and progression difficult for the police officer using it. In other units, such as the Civil Police of the State of Rio de Janeiro, all police officers have been issued with level III ballistic plates, which protect against shots from 7.62 NATO FMJ rifles. However, they cannot withstand shots from 5.56x45 SS109 caliber rifles. There is a level III++ ballistic plate on the market, which is safer than level III, as it offers protection against both the 7.62 NATO FMJ and 5.56x45 SS109 calibers [...]"

5.13. Therefore, given that there has been no change to the existing scenario in the conflicts raised by the Federal Police, it is understood that the acquisition of modified Level III ballistic plates, based on the NIJ 0101.06 standard, is the most appropriate for use by ordinary troops. As the last acquisition already required such specifications, which occurred in 2017, 5 years ago, it is understood that the market is mature enough to supply the specified material. Otherwise On the other hand, the international market is also capable of supplying items compatible with NIJ Standard 0101.06 and other certifications, with the technical possibility of supplying "stand alone" ballistic plates that are lighter and thinner than those currently held by the Federal Police.

5.14. As far as ballistic protection is concerned, the company needs to present a complete report based on NIJ Standard 0101.06 for level III, in addition to the calibers 5.56 x 45 mm - 62 gr - M855 (Minimum velocity of 920 m/s and maximum of 940 m/s), 5.56 x 45 mm - 55 gr - M193 (Minimum velocity of 956 m/s and maximum of 975 m/s) , 7.62 x 39 mm - MSC 123 gr (Mild Steel Core) - (Minimum velocity of 700 m/s and maximum of 730 m/s).

5.15. There are several international certifications on ballistic protection that are widely recognized. These certifications are issued by different organizations and countries, and each has its own criteria and testing methods. Here are some of the main international certifications:

NT-SENASP No. 003/2021 - Ministry of Justice and Public Security

5.15.1. In the Brazilian regulatory framework, the standard of the National Secretariat of Public Security (SENASP) of the Ministry of Justice and Public Security (MJSP) for ballistic vests is NT-SENASP No. 003/2021, which deals with police use in Brazil and was approved by Ordinance No. 281, of May 21, 2021, published in the Official Gazette (D.O.U.) No. 100, on May 28, 2021.

5.15.2. The Technical Standard aims to establish minimum quality and performance requirements applicable to the supply of material for professional public security activity and is part of Pró-Segurança, which is the National Program for Standardization and Certification of Public Security Products, established by MJSP Ordinance No. 104/20202, which arose from the need to establish minimum technical requirements for public security products, equipment and services, with the aim of providing the appropriate degree of quality, safety in use and performance, through the establishment of technical standards to enable the certification of these items.

5.15.3. With its advent, the contracting of ballistic vests by this Federal Police is linked to compliance with the minimum requirements transcribed therein, according to its text:

"[...]"

The Technical Standard aims to establish minimum standards of quality, safety, performance and efficiency, in addition to prescribing Conformity Assessment procedures for the standardized product, and, after its publication, it must be referenced and applied in public procurement processes until the item is duly certified, in accordance with Decree No. 10,030/2019, with the prerogatives established in MJSP Ordinance No. 104/2020.

In this sense, this NT-Senasp will regulate the minimum technical requirements, tests and certification scheme for Ballistic Protection Vests used in public security activities in the country, seeking to guarantee their quality and safety in terms of use and operational performance, resulting in savings and efficiency for the Public Administration.

"[...]"

(emphasis added)

5.15.4. The Standard cites NIJ Standard 0101.06, from the US National Institute of Justice, as a major reference, and classifies the levels of protection based on the calibers that make up the threats. For the purposes of this study, Level III of NT-SENASP is of interest for certifying the security of rigid ballistic plates:

Classification	Threat	Threat	Projectile Mass	Distance to Vest	Maximum Deformation Support Material (mm)	Test speed for vests conditioned to accelerated aging	Test speed for vests conditioned to submersion
Level II	Threat 1	9 x 19 mm Parabellum - Total ogival tip (FMJ RN)	8.0 g (124 gr)	5 m± 1	44	379 m/s± 9 m/s	398 m/s± 9 m/s
	Threat 2	.357 Magnum - Jacketed Soft Point (JSP)	10.2 g (158 gr)	5 m± 1	44	408 m/s± 9 m/s	436 m/s± 9 m/s
Level IIIA	Threat 1	.357 SIG - Full flat-topped (FMJ FN)	8.1 g (125 gr)	5 m± 1	44	430 m/s± 9 m/s	448 m/s± 9 m/s
		9 x 19 mm Parabellum - Full ogival tip (FMJ RN)*	8.0 g (124 gr)	5 m± 1	44	430 m/s± 9 m/s	448 m/s± 9 m/s
	Threat 2	.44 Magnum - Semi-jacketed soft point (SJSP) or .44 Magnum - Semi-jacketed muzzle loading (SJHP)**	15.6 g (240 gr)	5 m± 1	44	408 m/s± 9 m/s	436 m/s± 9 m/s
	Additional threat (+)	.357 Magnum - Jacketed Soft Point (JSP)	10.2 g (158 gr)	5 m± 1	44	452 m/s± 9 m/s	471 m/s± 9 m/s
Level III	Threat 1	7.62 x 51 mm - NATO full jacket (NATO FMJ)	9.6 g (147 gr)	15 m± 1	44	847 m/s± 9 m/s	847 m/s± 9 m/s
	Additional threat (+)	5.56 x 45 mm - SS 109 Total encamisado (SS 109 FMJ)	4.0 g (62 gr)	15 m± 1	44	915 m/s± 9 m/s	915 m/s± 9 m/s
Level IV	Threat 1	.30-06 Springfield - M2 Armor Piercing (M2 AP)	10.8 g (166 gr)	15 m± 1	44	878 m/s± 9 m/s	878 m/s± 9 m/s
	Additional threat (+)	7.62 x 51 mm - NATO Armor-piercing	9.6 g (147 gr)	15 m± 1	44	847 m/s± 9 m/s	847 m/s± 9 m/s
					Maximum	Test speed for vests conditioned	Test speed for

Classification	Threat	Threat	Projectile Mass	Distance to Vest	Deformation Support Material (mm)	to accelerated aging	vests conditioned to submersion
		(NATO AP)					

5.15.5. Item 8 of the NT-SENASP contains considerations on the main differences between the NT-SENASP and NIJ 0101.06, including additional tests and ways of obtaining NT-SENASP certification for equipment that is already NIJ 0101.06 certified:

"[...]

8.2 The main differences to be found are listed below:

- I - Inclusion of the flexibility test for flexible vests;
- II - Inclusion of acceptance criteria for area density;
- III - Possibility of using the 9 x 19 mm Parabellum (FMJ RN) threat instead of the .357 SIG FMJ FN threat in tests to ascertain the ballistic performance of Level III-A vests;
- IV - Possibility of using the .44 Magnum - Semi-jacketed Soft Point (SJSP) threat to replace the .44 Magnum - Semi-jacketed High Point (SJHP) threat in tests to verify the ballistic performance of Level III-A vests;
- V - Inclusion of the additional threat, as an optional additional requirement, of the .357 Magnum (JSP) with high velocity in tests to verify the ballistic performance of Level IIIA vests;
- VI - Inclusion of the additional threat, as an optional additional requirement, of the 5.56 x 45 mm NATO-SS109-FMJ in tests to ascertain the ballistic performance of Level III vests; and
- VII - Inclusion of an additional threat, as an optional additional requirement, of 7.62 x 51 mm (NATO AP) in the tests to verify the ballistic performance of level IV vests.

8.3 Therefore, if the vest model is approved in the NIJ Compliance Testing Program based on standard NIJ 0101.06, this certification can be used in the NT-Senasp certification process, and only the following tests need to be added:

"[...]

8.3.2. In the case of rigid vests, classified and certified respectively as Level III and Level IV according to the NIJ Compliance Testing Program and standard NIJ 0101.06, additional tests will only be necessary in the case of certification with an additional threat, which in the case of the complete method will be required:

- I - General, metrological and area density characteristics: 04 (four) vests in the case of Level III and 03 (three) to 18 (eighteen) vests in the case of Level IV;
- II - Accelerated ageing: 04 (four) for Level III and 03 (three) to 18 (eighteen) vests for Level IV;
- III - Submersion in water: 04 (four) in the case of Level III and 03 (three) to 18 (eighteen) vests in the case of Level IV;
- IV - Perforation and Deformation: 02 (two) vests in the case of Level III and 02 (two) to 12 (twelve) vests in the case of Level IV; and
- V - Ballistic Limit: 02 (two) vests for Level III and 01 (one) to 06 (six) vests for Level IV.

8.3.2.1. In the case of the Perforation and Deformation and Ballistic Limit tests for vests classified and certified respectively as Level III or Level IV according to the NIJ Compliance Testing Program and standard NIJ 0101.06, they will only be carried out for the following threats, considered optional additional requirements and following the test schemes provided for in this NT-Senasp for these threats:

Tabela 9 - Ameaças adicionais para os coletes certificados como nível III ou nível IV de acordo com o *NIJ Compliance Testing Program* e norma NIJ 0101.06

Classificação NIJ 0101.06	Ameaça Especial ou Adicional	Massa do Projétil	Distância para o Colete	Máxima Deformação Material de Apoio (mm)	Velocidade de Ensaio para coletes condicionados (m/s)	Velocidade de Ensaio para colete novo (m/s)
III	5,56 x 45 mm - SS 109 - Encamisado total (SS 109 FMJ)	4,0g (62 gr)	15 m ± 1	44	915 m/s ± 9 m/s	915 m/s ± 9 m/s
IV	7,62 x 51 mm - OTAN Perfurante de blindagem (NATO AP)	9,6g (147 gr)	15 m ± 1	44	847 m/s ± 9 m/s	847 m/s ± 9 m/s

[...]"
(emphasis added)

NIJ (National Institute of Justice) - United States:

5.15.6. NIJ certification is one of the most recognized worldwide and is widely used to evaluate ballistic vests. NIJ standards specify different levels of protection, according to the type of ammunition the vest is capable of resisting.

5.15.7. The National Institute of Justice (NIJ) in the United States has excellent expertise in establishing standards for ballistic protection equipment, including bulletproof vests. Its NIJ 0101.06 and NIJ 0101.07 standards represent different editions of the testing and certification standards for this equipment, the most current version having been issued in October 2023.

Considerations on the differences between NIJ 0101.06 and NIJ 0101.07:

5.15.7.1. In light of the recent regulatory update, it is necessary to address the differences between the NIJ 0101.06 and NIJ 0101.07 standards, highlighting significant updates in the latest edition, including new levels of protection, more comprehensive test methods and durability and technology considerations. The two standards set standards for ballistic vests, but with revisions and updates based on technological advances and modern operational needs.

5.15.7.2. NIJ 0101.06 and NIJ 0101.07 are reference standards for ballistic plate testing, widely recognized and used globally. NIJ 0101.06, introduced in 2008, established strict criteria for evaluating the ballistic resistance of vests and plates, including penetration tests with calibers such as the 7.62mm NATO FMJ and the .30-06 Springfield M2 AP, as well as conditioning the plates to cycles of extreme temperature and high humidity to simulate adverse conditions. The more recently introduced NIJ 0101.07 retains many of the rigorous tests of NIJ 0101.06, but introduces new calibers, such as the 5.56x45mm M855 FMJ (SS109) and 7.62x39mm MSC, reflecting more contemporary ballistic threats. In addition, NIJ 0101.07 introduces new levels of protection, such as NIJ RF2 and NIJ RF3, and places greater emphasis on submersion and impact, requiring the plates to withstand even more severe test conditions.

5.15.7.3. The main difference between the two standards lies in updating the types of threats and incorporating new test calibers, reflecting the evolution of ballistic threats on the battlefield and on the streets. Both standards require maximum deformations of 44 mm in the support material and test the durability of the plates after exposure to extreme temperature and humidity cycles, as well as drop impact tests. The evolution from NIJ 0101.06 to NIJ 0101.07 demonstrates an ongoing effort to ensure that ballistic protection equipment not only withstands a wider range of modern threats, but also maintains high standards of quality and reliability under extreme conditions, ensuring maximum protection for users.

NIJ 0101.06 (2008):

Published in July 2008, this standard established a detailed and rigorous testing framework for ballistic vests. The classification of protection levels included IIA, II, IIIA, III and IV, based on the ability to resist different types of ammunition. It specifies types of ammunition, including revolver and rifle bullets, such as 9mm, .40 S&W, .357 Magnum, .44 Magnum, 7.62mm NATO and .30-06 AP.

The test methods involve testing in various environmental conditions, such as high and low temperature, submersion in water and exposure to sunlight. In addition, there is the measurement of the deformation on the back of the vest after impact (Backface Signature, BFS) to ensure that the projectile's energy does

not cause significant injury to the wearer. It requires a minimum of 24 bullet impacts for Levels IIA, II and IIIA vests, and 12 impacts for Levels III and IV. To assess durability and use cycles, conditioning tests are carried out which include 10 bending cycles and exposure to humidity and high temperature to simulate wear over time.

NIJ 0101.07 (2021):

The new standard was published in 2021, with significant revisions based on technological advances and modern operational needs. It introduces new and modified levels: HG1, HG2, RF1, RF2, RF3, corresponding to different types of ballistic threats, including handgun and rifle ammunition. Updates tested ammunition types to reflect modern threats, including calibers such as 5.56mm and 7.62mm, more common in today's conflicts.

Test methods now involve more rigorous environmental testing, including a wider range of temperature and humidity conditions to simulate extreme climates. Maintains the measurement of rear-end deformation (BFS), but with potentially stricter acceptance standards. Increases the number of shots and the rigor of the tests to ensure consistency and confidence in the performance of the vests in various conditions.

Conditioning tests have been expanded and intensified to better simulate real wear over time, including additional cycles of flexion, compression and exposure to aggressive environments. It considers advances in materials and design, such as lighter and more comfortable vests, and evaluates how these new materials behave in real situations.

5.15.8. Bulletproof vests are classified to indicate the type of ammunition they can withstand for ballistic protection. NIJ Standard 0101.07 establishes updated performance criteria and test procedures for evaluating the ballistic resistance of body armor. The revised NIJ Standard 010.06 is designed to update protection standards, safeguarding against small arms and rifle threats.

5.15.9. NIJ Standard 0101.07 defines the rifle threat levels as RF1 and RF3, and introduces a new RF2 threat level to fill the gap between the two, protecting against 5.56mm M855 ammunition fired at 3115 ft./s (950 m/s), which in effect constitutes an intermediate level of protection against rifles that includes all the threats in the NIJ RF1 protection level, plus an additional threat, resembling the "III+" protection models commonly used in the international market. NIJ 0101.07 also features the ballistic test threat definitions from NIJ Standard 0123.00, entitled "Specification for NIJ Ballistic Protection Levels and Associated Test Threats".

5.15.10. The updates to the NIJ standards reflect a significant evolution in ballistic protection, taking into account technological advances and new threats. The introduction of more detailed and rigorous protection levels, more comprehensive test methods and the consideration of new materials ensure that ballistic vests offer a higher level of protection and reliability for end users. The continued adoption of NIJ 0101.07 by the defense and public safety industries is a crucial step towards increasing the safety of users in combat.

VPAM (Vereinigung der Prüfstellen für Angriffshemmende Materialien und Konstruktionen) - Germany/Europe:

5.15.11. VPAM is a German organization that sets standards for the evaluation of ballistic protection and resistance against attack and is renowned for its stringent test criteria for rigid ballistic plates, aimed at guaranteeing maximum protection in extreme conditions. It stands out for involving a series of demanding tests that simulate realistic and adverse scenarios, such as temperature cycles ranging from -40°C to 70°C, and humidity tests that include submersion for 30 minutes.

5.15.12. The VPAM classification includes various levels of protection, according to the type of weapon and ammunition used in the tests, according to the text below:

Test level	Ammunition and projectile				Test conditions	
	Caliber	Type	Nominal mass [g]	Manufacturer/ type	Firing distance ¹²⁾ [m]	Impact velocity [m/s]
1	22 Long Rifle ⁴	L/RN	2.6	RUAG HV Field Line	10 ± 0.5	360 ± 10
2	9 mm Luger ^{5) 7)}	FMJ/RN/SC	8.0	DAG, DM 41 ¹¹⁾	5 ± 0.5	360 ± 10
3	9 mm Luger ^{5) 7)}	FMJ/RN/SC	8.0	DAG, DM 41 ¹¹⁾	5 ± 0.5	415 ± 10
4 ¹⁾	357 Magnum	FMJ/CB/SC	10.2	Geco	5 ± 0.5	430 ± 10
5	44 Rem. Mag. ⁶⁾	JSP/FN/SC	15.6	Speer No. 4454	5 ± 0.5	440 ± 10
	357 Magnum	FMs/CB	7.1	Specification IAW VPAM ¹³⁾	5 ± 0.5	580 ± 10
6	7.62 x 39	FMJ/PB/FeC	7.9	PS ¹⁰⁾	10 ± 0.5	720 ± 10
7 ¹⁾	223 Rem. ^{2) 8)}	FMJ/PB/SCP	4.0	MEN, SS 109	10 ± 0.5	950 ± 10
	308 Win. ⁹⁾	FMJ/PB/SC	9.55	MEN, DM 111	10 ± 0.5	830 ± 10
8	7.62 x 39	FMJ/PB/HCI	7.7	BZ ¹⁰⁾	10 ± 0.5	740 ± 10
9	308 Win. ^{3) 9)}	FMJ*/PB/HC	9.6	FNB, P 80	10 ± 0.5	820 ± 10
10	7.62 x 54 R	FMJ/PB/HCI	10.4	B32 ¹⁰⁾	10 ± 0.5	860 ± 10
The twist rates can be gathered from the dimension sheets (TDCC) of the C.I.P. Deviating twist rates and dimensions are marked by exponents in the column "Caliber".						

Figure 01 - VPAM - General Basics of Ballistic Material, Design and Product TestsLevel

Classification

5.15.13. VPAM protection levels, such as VPAM 6 and VPAM 7, specify rigorous calibers such as the 7.62x39mm MSC and the 7.62x51mm NATO FMJ, respectively, with each level requiring three shots at a test distance of 10 meters and an impact angle of 0 degrees. In addition, the VPAM standard requires that trauma deformation does not exceed 25 mm, which is more restrictive compared to other standards, ensuring less impact on the user. The standard also includes drop impact tests from a height of 2 meters onto hard surfaces, ensuring that the plates maintain their integrity after significant physical impacts.

5.15.14. These strict criteria ensure that ballistic plates subjected to VPAM testing offer reliable and long-lasting protection, even in the harshest conditions. Some well-known manufacturers and companies that use VPAM certifications for their products include Mehler Vario System and Protecop, for example.

CAST (Centre for Applied Science and Technology) - United Kingdom:

5.15.15. The CAST standard specifies requirements for ballistic protection equipment used by police and military forces in the UK and has the threat level nomenclature described below:

Table 8: Ballistic protection levels

Protection level	Classification and calibre	Test round designation	Bullet mass	Range (min) (m)	Max. mean BFS (mm)	Single shot BFS limit (mm)	Velocity (m.s ⁻¹)
HO1	9 mm FMJ	MEN 9 mm FMJ DM11A1B2	8.0 g (124 grain)	5		44.0	365 ± 10
	9 mm JHP	Federal Premium 9 mm JHP P9HST1	8.0 g (124 grain)	5		44.0	365 ± 10
HO2	9mm FMJ	MEN 9 mm FMJ DM11A1B2	8.0 g (124 grain)	5		44.0	430 ± 10
	9 mm JHP	Federal Premium 9 mm JHP P9HST1	8.0 g (124 grain)	5		44.0	430 ± 10
HO3	Rifle 7.62 calibre	Radway Green 7.62 mm NATO Ball L44A1 or L2A2	9.3 g (144 grain)	10	25.0	30.0	830 ± 15
	Rifle 7.62 calibre	7.62 × 39 mm surrogate ¹⁹	7.9 g (122 grain)	10	25.0	30.0	705 ± 15
HO4 ²⁰	Rifle 7.62 calibre	SAKO .308 Win 480A Powerhead or Barnes .308 TSX BT	10.7 g (165 grain)	10	25.0	30.0	820 ± 15
SG1	Shotgun 12 gauge True Cylinder	Winchester 1 oz. Rifled 12RSE	28.4 g	10	25.0	30.0	435 ± 25
Special	Based on threat and risk assessment						

Figure 03 - Image of Table 9 of the Body Armour Standard 2017 (CAST).

Table 9: Additional 'special' test rounds

Protection level	Classification and calibre	Test round designation	Bullet mass	Range (min) (m)	Max. mean BFS (mm)	Single shot BFS limit (mm)	Velocity (m.s ⁻¹)
Special	0.357" Magnum	Soft Point Flat Nose Remington R357M3	10.2 g	5		44.0	390 ± 10 455 ± 10
Special	5.56 × 45 mm SS109	5.56 × 45 mm Ball L17A1 or L15A1	4.01 g (62 grain)	10	25.0	30.0	920 ± 15
Special	Carbine 5.56 × 45 mm NATO	Federal Tactical Bonded 5.56 mm (.223) LE223T3	4.01 g (62 grain)	10	25.0	30.0	750 ± 15

Figure 03 - Image of Table 9 of the Body Armour Standard 2017 (CAST).

- 5.15.16. CAST certification is recognized for its rigorous ballistic resistance tests, applied mainly to bulletproof vests and ballistic plates. CAST tests are designed to simulate realistic conditions of use, ensuring that ballistic protection materials meet the highest safety standards. Among the tests carried out are the evaluation of the ability to withstand shots from different types of projectiles, such as FMJ (Full Metal Jacket) and AP (Armor-Piercing), at various distances and impact conditions.
- 5.15.17. In addition, CAST's certification procedures include exposure tests to extreme environmental conditions such as variations in temperature and humidity, and evaluation of the maximum deformations allowed in the support materials. These tests ensure that CAST-certified equipment offers effective and reliable protection against a variety of ballistic threats, providing safety for users in critical situations.
- 5.15.18. Although not often cited, CAST enjoys international recognition due to its expertise in certifying safety materials and equipment, with a significant focus on ballistic protection. Although based in the UK and linked to the British government, CAST's reach is not limited to British territory. Its standards and tests are frequently used as a reference by manufacturers, institutions and international organizations seeking to ensure the conformity and effectiveness of ballistic products around the world. This reflects the trust and credibility of CAST's certification methods, which are applicable globally to guarantee the quality and safety of bulletproof vests and ballistic plates in various applications and operating environments.
- 5.15.19. Internationally recognized manufacturers of ballistic safety equipment often use CAST certification to validate the conformity and quality of their products. Some examples of manufacturers using CAST certification include Point Blank Enterprises, Mehler Vario System and Safariland, for example.

5.16. These certifications are key to ensuring that ballistic protection products meet the safety standards needed to protect lives in hazardous situations. Each certification uses specific testing methods and protection classification criteria, but all are equally capable of guaranteeing the effectiveness of ballistic material against different types of threats.

Choosing the Level of Protection

5.17. The implementation of ballistic protection standards by the NIJ ensures that security forces have reliable equipment to face lethal threats. These standards guide agencies in selecting the right equipment for officers' specific protection needs, which are essential for survival in risky situations.

5.18. Ballistic protection vests are products controlled by the Brazilian Army in accordance with Ordinance No. 18/2006 EB/MD and complementary standards, whose protection level classification refers to NIJ Standard 0101.04, of the National Institute of Justice of the United States of America, into levels I, II-A, II, III-A, III and IV, and are established in accordance with the Brazilian Army Experimental Report - ReTeX, and the presentation of RETEX, RAT or the Certificate of Conformity of the Prototype of Products Controlled by the Army (PCE), duly apostilled, is mandatory, as required by ordinance 189-EME/2020.

5.19. According to the text of NT-SENASP No. 003/2021, Level III and IV vests are recommended "for application in peculiar, specific or special circumstances that require protection against threats of greater severity, normally arising from unconventional public security activities"; it is clear, therefore, that the calibers 7.62x51mm M80 Ball NATO FMJ and 5.56x45mm M855 FMJ (SS109) covered by Level III constitute more recurrent threats for the reality of the Federal Police within the purpose for which the material is intended.

5.20. Its scope is to define the minimum design requirements for ballistic protection vests intended for public safety and the methods for carrying out the tests, in order to guarantee the safety, quality, performance and reliability of this protective equipment, as well as specifying the threat levels, with their respective calibers, to which the ballistic protection vests must be able to withstand mechanically, in order to avoid perforations or deformations.

5.21. The Technical Standard highlights the NIJ 0101.06 standard from the US National Institute of Justice as its knowledge base, with the inclusion of additional technical requirements and tests. In fact, the NIJ standards provide an essential framework for protection against ballistic threats. The unofficial inclusion of level III+ in the discussion highlights the continuous evolution of protection needs and the industry's commitment to responding to these changes with innovative solutions. As threats evolve, the importance of informed choices based on a clear understanding of the capabilities and limitations of the various protection options becomes even more critical. Thus, the standards established by the National Institute of Justice (NIJ) Standard 0101.06 for levels III and IV provide a regulatory framework for protection against high-caliber firearm shots.

5.22. The choice of protection level must take into account operational risk analysis, the likelihood of facing specific threats and the balance between protection, mobility and comfort. Level III+ plates appear as a viable option for those who need intermediate protection, capable of covering a broader spectrum of threats without the weight and mobility restrictions associated with level IV. In addition, the unofficial category "level III+" enters as a middle ground in the range of protections, addressing a specific gap between protection levels III and IV, which today is translated by NIJ RF2 through Standard NIJ 0101.07.

5.23. VPAM (Vereinigung der Prüfstellen für angriffshemmende Materialien und Konstruktionen) is a German/European organization that establishes strict criteria for the certification of ballistic protection products. Within this standard, VPAM 6 and VPAM 7 are specific categories that define the levels of protection against different ballistic threats. VPAM 6 is designed to withstand fire from ammunition such as the 7.62x39mm MSC, while VPAM 7 offers protection against more powerful calibers, including the 7.62x51mm NATO FMJ and the 5.56x45mm M855 FMJ (SS109). These standards are widely respected and applied in various contexts, guaranteeing the safety of users through rigorous tests that simulate realistic conditions of use. Ballistic materials can be certified in accordance with the VPAM to provide additional protection against the threats posed by the 7.62x51mm NATO FMJ and the 5.56x45mm M855 FMJ (SS109).

5.24. The UK's CAST (Centre for Applied Science and Technology) certification also defines specific standards for ballistic protection. CAST HO3 and HO4 protection levels are designed to provide a robust defense against common threats. The HO3 level offers protection against 7.62mm NATO FMJ shots, while the HO4 is capable of stopping more powerful projectiles, such as the .30-06 Springfield M2 AP. In addition, special protection for the 5.56 × 45 mm SS109 caliber demonstrates the versatility and comprehensiveness of CAST standards, ensuring that ballistic vests can stand up to a wide range of threats. CAST standards are mainly applied in the UK, but their rigor and effectiveness also make them internationally recognized.

5.25. When comparing the VPAM and CAST standards, it is clear that both share a commitment to safety and the protection of users through rigorous testing

and certification criteria. The evolution of these standards reflects the growing need for protection against a wide variety of ballistic threats, ensuring that users are equipped with the best possible level of defense in critical situations.

Table 03 - Table of nomenclature similarities between the SENASP, NIJ, CAST and VPAM Ballistic Protection Standards.

NT- SENASP n.º 03/2021	NIJ 0101.06	NIJ 0101.07	VPAM	CAST	REMARKS
Nível II	NIJ II	NIJ HG1	VPAM 2	HO1	Generally soft and comfortable to wear under clothing, it offers protection against low-velocity projectiles of common short-arms calibers. Examples: FMJ (Full Metal Jacket) 9mm, .40 Smith & Wesson and .45 ACP ammunition. Generally soft and comfortable to wear under clothing.
Nível IIIA	NIJ IIIA	NIJ HG2	VPAM 3	HO2	Also soft and lightweight, it can be concealed and comfortable to wear under clothing in some cases, and offers greater protection than the NIJ IIA against a variety of handgun ammunition.
-----	NIJ III	NIJ RF1	VPAM 6	HO3	Generally bulky and uncomfortable for prolonged use under clothing, it offers protection against rifle ammunition and high-velocity ammunition. This is a broad spectrum of ballistic threats that previous levels can protect against. The NIJ III provides users with crucial protection against high-velocity ballistic threats that surpass handgun ammunition. Examples: FMJ 7.62mm ammunition, which can include 5.56mm NATO and .308 Winchester.
Nível III	-----	NIJ RF2	VPAM 7	HO3 + Special SS109	Level RF2 is a new intermediate level for rifle protection and fills a gap between the previous NIJ Type III and NIJ Type IV threat levels, normatively encompassing what would be the informal "Level III+" widely manufactured by the market. It includes all NIJ RF1 threats and 5.56mm M855 (or SS109 FMJ NATO) steel-core armor-piercing ammunition.

NT- SENASP n.º 03/2021	NIJ 0101.06	NIJ 0101.07	VPAM	CAST	REMARKS
Nível IV	NIJ IV	NIJ RF3	VPAM 9	HO4	Offers the greatest defense against the most powerful ballistic threats, designed to withstand high-powered rifle ammunition and armor-piercing projectiles. Examples: .30-06 M2AP, 7.62mm NATO AP and .300 Winchester Magnum AP.

Table 04 - Illustration of the calibers covered by the different levels of protection.

Ameaça (Calibre)	Massa Nominal (gr)	Velocidade Nominal (m/s)	SENASP Nível III (+)	NIJ III	NIJ RF2	VPAM 6	VPAM 7	CAST HO3 + Special
7.62x51mm M80 Ball NATO FMJ	147	847	x	x	x		x	x
5,56x45mm M855 FMJ (SS109)	62	950	x		x		x	x
5.56x45mm M193	56	990			x			
7.62x39mm MSC	122	732			x	x		

5.26. The NIJ 0101.06, NIJ 0101.07, NT-SENASP 003/2021, VPAM and CAST standards are considered the most compatible for security compliance requirements for acquisitions in the Brazilian Public Sector due to their comprehensiveness, rigor, market capillarity and international recognition.

5.27. NIJ (National Institute of Justice) is widely accepted internationally for its detailed specifications and rigorous testing procedures, ensuring that equipment meets high quality and safety standards, including integrity and drop resistance tests for rigid ballistic plates. NT-SENASP No. 003/2021, developed specifically for the Brazilian context, takes into account local needs and challenges, adapting international parameters to national realities, which facilitates practical implementation and inspection. VPAM (Vereinigung der Prüfstellen für angriffshemmende Materialien und Konstruktionen) is known for its strict criteria and testing in extreme conditions, guaranteeing superior performance in adverse environments. The UK's CAST (Centre for Applied Science and Technology) also stands out for its rigorous and comprehensive standards, which ensure that ballistic protection equipment is effective against a wide range of threats, and is recognized for its application in both the UK and international contexts.

5.28. The harmonization of these standards provides a solid and reliable basis for the acquisition of ballistic protection equipment for the reality of Public Security in Brazil, ensuring that the products acquired meet the highest standards of safety and effectiveness, essential for the protection of public security agents. This reasoning can be consolidated by comparing the testing methods of each standard, which can be summarized in the table below:

Table 05 - Summary comparative table of SENASP, NIJ, VPAM and CAST test protocols.

TEST	NIJ 0101.06	NIJ 0101.07	NT-SENASP 003/2021	VPAM	CAST
Environmental Condition	Conditioning of the samples at 25 °C ± 10 °C in relative humidity at 20 to 50% for at least 24 hours before the start of the test protocol. Exposure test at a uniform temperature of	Conditioning of the samples at 20°C ± 5.6°C in relative humidity of 20 to 50% for at least 24 hours before the start of the test protocol. Exposure test at a uniform temperature of	Conditioning of the samples at 20°C ± 5.5°C in relative humidity between 20% and 50% for at least 24 hours before the start of the test protocol. Uniform temperature exposure test	The samples will be exposed to temperatures of -20± 2°C to 70± 2°C at a relative humidity of 65 ± 5 % for at least 16 hours prior to testing	Ambient at 20 ± 3°C and relative humidity of 40 to 70% for at least 12 hours before the test. at least 12 hours before testing. Optional prior tests:

TEST	NIJ 0101.06	NIJ 0101.07	NT-SENASP 003/2021	VPAM	CAST
	65°C with 80% relative humidity for 10 days. Cyclic exposure test to temperatures at 12 intervals of 2 hours each, giving a total range of -15 to 90°C at relative humidity of 80%. of 50%, totaling 24 hours of testing.	65°C at 80% relative humidity for 10 days. Cyclic exposure test to temperatures at 12 intervals of 2 hours each, giving a total variation of -15 to 90°C at relative humidity of 50%. of 50%, totaling 24 hours of testing.	65°C at 80% relative humidity for 10 days. Cyclic exposure test to temperatures at 12 intervals of 2 hours each, giving a total variation of -15 to 90°C at relative humidity of 50%. of 50%, totaling 24 hours of testing.		Submersion in deionized water from 15 to 20°C for 15 ± 3 min. Test under extreme temperatures of -22°C to 55°C in environmental chamber for 24 ± 2 hours.
Penetration test per protection level (number of shots per plate)	Level III: 7.62mm NATO FMJ (847 m/s): 6 shots at an angle of 90° (Angle 0° IAW NATO) at 15± 1 meters Level IV: .30-06 Springfield M2 AP (878 m/s): 1 to 6 shots at 90° angle (0° angle IAW NATO) 15± 1 meter	NIJ RF3: 7.62mm NATO FMJ (847 m/s): 6 shots; 5.56x45mm M855 FMJ (SS109): 3 to 6 shots at 90° angle (0° angle IAW NATO) NIJ RF4: .30-06 Springfield M2 AP (878 m/s): 1 to 6 shots at 90° angle (0° angle IAW NATO)	Level III: 7.62x51mm NATO M80 FMJ (847 ± 9 m/s) and 5.56x45mm M855 FMJ (SS109): 6 shots or as recommended by the manufacturer. Level IV: .30-06 Springfield M2 AP (878 ± 9 m/s): no. of shots the number recommended by	VPAM 6: 7.62x39mm MSC (720± 10 m/s): 3 shots at 10 meters with impact at angles of 90° and 25°. VPAM 7: 7.62x51mm NATO M80 FMJ (820± 10 m/s): 3 shots at 10 meters impact at angles of 90° and 25°; 5.56x45mm M855 FMJ (SS109): 3 shots at 10m	HO3: 7.62mm NATO FMJ (847± 9 m/s) or 7.62 × 39 mm: 3 shots at 10m and at an angle of 90° (Angle 0° IAW NATO). HO4: .308 Win 480A Powerhead or Barnes .308 TSX BT (820± 15 m/s): 3 shots at 10m and 90° angle (0° angle IAW NATO) Special: 5.56x45mm SS109 (920 ± 15

		IAW NATO)	the manufacturer.	impact at angles of 30 and 25°.	m/s); 1 shot at 10m and at an angle of 90° (Angle 0° IAW NATO)
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TEST	NIJ 0101.06	NIJ 0101.07	NT-SENASP 003/2021	VPAM	CAST
Trauma Deformation	Maximum permissible depth: 44 mm in plasticine	Maximum permissible depth: 44 mm in plasticine	Maximum permissible depth: 44 mm in plasticine	Maximum permissible depth: 22 mm in plasticine	Maximum depth allowed: 25 mm in plasticine
Exposure to water and/or Humidity	Submersion for 30 minutes in potable or demineralized water at 21°C, with a tolerance of+ 2.9 °C / -5,8 °C.	Submersion for 30 minutes in potable or demineralized water at 21°C, with a tolerance of+ 2.9 °C / -5,8 °C.	Submersion for 30 minutes in potable or demineralized water at 21°C, with a tolerance of+ 2.9 °C / -5,8 °C.	----	Submersion in deionized water at 15 to 20°C for 15 ± 3 min.
Drop Impact	Each sample is subjected to the drop test, when the plate is attached to a mass of 10 lb (4.54kg) on a pivoted structure with a radius of 122 cm, perpendicular perpendicular to a concrete surface, and is subjected to the drop impact twice.	Each sample is subjected to the drop test, when the plate is attached to a mass of 10 lb (4.54kg) on a pivoted structure with a radius of 122 cm, perpendicular perpendicular to a concrete surface and is subjected to impact by falling twice.	----	----	----
Acceptance criteria	Maintain Structural integrity: no cracks, delaminations or deformations Protection Effectiveness: deformation in material	Maintain Structural integrity: no cracks, delaminations or deformations Protection effectiveness: deformation in material	Maintain Structural integrity: no cracks, delaminations or deformations Protection effectiveness: deformation in material	Maintain Structural integrity: no cracks, delaminations or deformation Effectiveness of Protection: material deformation	Maintain Structural integrity: no cracks, delaminations or deformation Protection Effectiveness: deformation in the

TEST	NIJ 0101.06	NIJ 0101.07	NT-SENASP 003/2021	VPAM	CAST
	of support not exceeding 44 mm	of backing not exceeding 44 mm	of backing not exceeding 44 mm	of backing not exceeding 22 mm	backing material not exceeding 25 mm

5.29. From the above, a comparison of the NIJ 0101.06, NIJ 0101.07, NT-SENASP 003/2021, CAST and VPAM standards for ballistic plates reveals several important similarities in the tests and evaluation procedures, demonstrating a common commitment to the safety and effectiveness of the materials. All the standards share a concern for environmental conditioning, involving temperature and humidity cycles to ensure that the plates maintain their integrity and effectiveness under varying conditions. Specifically, NIJ 0101.06, NIJ 0101.07 and NT-SENASP 003/2021 require temperature cycles of -20°C to 70°C and exposure to humidity for 10 days at 80% RH, while VPAM goes further with temperatures ranging from -40°C to 70°C.

5.30. In the penetration test, all the standards specify shots from common calibres such as 7.62mm NATO FMJ and .30-06 Springfield M2 AP, reflecting a standardized approach to measuring ballistic resistance. NT-SENASP 003/2021, in particular, stands out for testing level III with calibers 7.62x51mm NATO M80 FMJ (847 ± 9 m/s) and 5.56x45mm M855 FMJ (SS109), specifying 6 shots for each, in line with the strict practices of NIJ 0101.07.

5.31. Trauma deformation is another aspect where there is consensus, with all standards allowing a maximum depth of 44mm, except CAST and VPAM, which adopt stricter limits of 25mm and 22mm respectively. This parameter is crucial to ensure that, even when the plate is not penetrated, the impact on the user's body is minimized.

5.32. In addition, all standards include post-impact tests to verify the structural integrity of the plates after being subjected to impacts and adverse conditions. The post-impact assessment checks for cracks, delamination and deformation, ensuring that the plates continue to offer effective protection after exposure to extreme situations.

5.33. Thus, despite some differences in specific procedures and parameters, the NIJ 0101.06, NIJ 0101.07, NT-SENASP 003/2021 and VPAM standards share a solid common ground in their objectives and test methods. They ensure that ballistic plates offer reliable protection in a variety of environmental and physical conditions. The standardization of calibres such as the 7.62mm NATO FMJ and attention to trauma deformation are testimony to this joint commitment to safety and effectiveness.

5.34. In conclusion, while all standards aim to ensure the effectiveness of ballistic plates in various conditions, NIJ 0101.07 and VPAM offer more comprehensive and rigorous testing, reflecting the evolution of modern ballistic threats. NT-SENASP No. 003/2021, although similar, presents specific adaptations that may be more relevant to the Brazilian context. From this, it can be inferred that the solutions for ballistic plates intended for Federal Police officers, in the context of the reality in which they operate, require quality certification against the threats posed by calibers 7.62x51mm NATO FMJ and 5.56x45mm M855 FMJ (SS109), which can be translated into proof of compliance with Level III of NT-SENASP No. 003/2021, or with NIJ III of NIJ 0101.06 with proof of additional protection for caliber 5.56x45mm M855 FMJ (SS109), or to NIJ RF2 of NIJ 0101.07, or to VPAM 6 with proof of additional protection for calibers 5.56x45mm M855 FMJ (SS109) and 7.62x51mm M80 Ball NATO FMJ, or CAST HO3 + Special, or VPAM 7.

5.35. However, with the advent of Ordinance No. 281, of May 21, 2021, there is no need to require NIJ, CAST or VPAM certifications for ballistic plates when assessing product quality and reliability in public procurement procedures, but only the PCE Certificate of Conformity from the Ministry of Justice and Public Security containing compliance with NT-SENASP No. 003/2021 - Ballistic Protection Vests (according to Ordinance No. 281/2021). In addition, NIJ-certified vests are easier to obtain national conformity for, according to the text of the Technical Note, if the vest model being assessed has already been approved by the NIJ Compliance Testing Program based on standard NIJ 0101.06, this certification can be used in the NT-SENASP certification process and, in the case of rigid vests, classified and certified respectively as Level III and Level IV according to the NIJ Compliance Testing Program and standard NIJ 0101.06, additional tests will only be necessary if it is a certification with an additional threat.

Technical criteria for specifying equipment

5.36. Defining the police officer's operational needs is the starting point for finding the right equipment for the intended purpose. From there, the technical details will be described in order to correctly list the object's requirements. Therefore, the various minimum requirements of the intended material must be listed extensively, in conjunction with its purposes for future assessment of proper functionality. Furthermore, the right fit is important not only for comfort and functionality, but also for safety.

5.37. Ballistic Plates and Plate Carriers must therefore contain at least the following characteristics, as detailed in Annex I of this Study:

5.37.1. A support large enough to accommodate the ballistic plates.

5.37.2. Modularity with the MOLLE system, which allows the attachment of pouches, holsters and accessories for customization according to the needs of each operator.

5.37.3. The size of the plate is based on the size of the torso, from nipple to nipple and then from the top of the sternum to a few centimeters above the navel (above or below the rib cage). The plate should be just inside the nipples horizontally and cover the sternum up to the middle of the stomach, below the rib cage, vertically.

5.37.4. The plate carrier should fit snugly around the torso so that it is perfectly functional, without being too tight or loose, and should have adequate padding to provide cushioning between the body and the plates. It should be adjusted to fit snugly around the shoulders, with the front and back panels centered on the chest and back respectively. The cummerbund should fit securely around the waist, with the Velcro straps firmly attached so that it holds the equipment to the body without, at the same time, restricting breathing or movement. A well-fitting vest protects the ballistic plates without adding resistance to the operator's range of movement, and a comfortably-fitting cummerbund also helps to reduce pressure on the shoulders.

5.37.5. It is also necessary for the Plate Carrier to be equipped with a self-adjusting cummerbund system (usually by internal or external elastic bands) so as not to put pressure on the operator's abdomen when in positions that cause an increase in abdominal circumference, such as sitting on vehicle seats or crouching down to take cover in combat situations, for example).

5.37.6. Thus, the set must be comfortable enough to allow their arms to move without restriction to shoot, draw their weapon, access equipment, make the transition from rifle to pistol, run or any movement that operational service requires.

5.37.7. Plate carriers should extend approximately from the bottom of the collarbone to the base of the rib cage.

5.37.8. The priority for protecting ballistic plates should be to cover at least their most vital organs: the heart, liver and lungs. The protection should start two fingers below the collarbone. A common mistake is to wear the set too low in an attempt to cover the lower part of the stomach, compromising the protection of your most vital organs in the upper part of the chest. Covering the heart box, therefore, where your most vital organs are located
organs are located, such as the heart and lungs, is essential, since those injured by gunshots to the stomach generally have a higher survival rate than those shot in the upper chest.

5.37.9. The size options vary according to the material and the company, but there are generally four different sizes of ballistic plates:

5.37.9.1. Small: Small plates are ideal for most women and men of smaller stature. They are approximately 20 cm x 25 cm/28 cm in size.

5.37.9.2. Medium/Standard: Medium plates, sometimes called standard, are the most common and suit medium-sized men and some women. They are about 25 cm x 30 cm in size.

5.37.9.3. Large: Large plates are for men of above average height and stature, measuring 25 cm x 33 cm.

5.37.9.4. Extra Large: These are obviously the largest plates, for the biggest men. They are 28 cm x 35 cm.

5.37.10. It is highly desirable for the Plate Carrier to have a Quick Release system for activation in highly critical situations that require the operator to dispose of the equipment as quickly as possible in order to save his own life, such as in "man overboard" situations (a term used even for inland waters - such as rivers and flooded areas), where the operator often needs to dispose of dead weights that could cause death by drowning - a situation that is very common in the operational reality of the Federal Police's NEPONS, for example. Another case that is highly present in the reality of the Agency as a whole, among the many others that can be mentioned, is the possibility of needing to release the license plate holder in the event of vehicle accidents that cause the equipment to get stuck in the vehicle.

5.37.11. In addition, the Quick Release system is crucial in Tactical Pre-Hospital Care scenarios, where, in most cases, speed is of the essence if life is to be preserved. The system facilitates the removal of the ballistic vest without the need for complex maneuvers or loss of precious time, which is particularly important in cases of treatment of wounds in areas covered by the vest, such as the chest or abdomen, when the rapid removal of the equipment can be the difference between life and death.

5.37.12. It is also important in situations where the operator is being transported or evacuated from a conflict zone, as the system allows for more efficient

mobilization by enabling rapid release of the equipment, preventing the weight and volume of the plate carrier from hindering rescue procedures or emergency medical treatment. This contributes not only to the patient's comfort and safety, but also to the effectiveness of the rescue team, who can quickly access vital areas and apply treatments more quickly. In short, the quick release system on plate carriers is a vital tool in the context of tactical pre-hospital care, enabling greater agility, safety and efficiency in the treatment of injured people in critical scenarios.

5.37.13. For the quick release system to be effective, however, it needs to be designed under the following operating assumptions: speed and reliability in removal (disassembly); activation by a single command (button, lever, etc.) with just one hand that performs simultaneous removal (disassembly) of the plate carrier; intuitiveness of use in stressful situations; ease/intuitiveness of reassembly in case the equipment can be recovered.

References used as technical and operational parameters

5.37.14. The purpose of indicating a particular brand in the bidding process is to establish a minimum standard of quality and performance for the object to be purchased, ensuring that it meets the needs of the public administration. However, in accordance with the principles of equality and competitiveness set out in Law 14.133/2021, the reference to the brand does not imply exclusivity, and proposals for equivalent or better quality products are admitted.

5.37.15. The choice of reference is based on technical and operational criteria that guarantee the durability, reliability and compatibility of the item with the equipment and processes already in use.

5.37.16. In addition, equivalent or better quality products will also be accepted.

5.37.17. In this way, a reference to the brand does not limit competition, but ensures that the object of the tender meets the minimum desirable standards, allowing the purchase of the most advantageous item from a technical and economic point of view.

5.37.18. A more detailed description of the object and its technical and operational references are included in Annex I - TECHNICAL SPECIFICATIONS OF THE OBJECT.

Usability tests

5.38. With regard to the vest's usability, it should be pointed out that in 2014 women's vests with bulges were purchased. The issue of bulges in women's ballistic vests has been studied for a number of years by public safety organizations, academics and manufacturers in various parts of the world. Surveys carried out by the Planning and Control Division - DPC /CGPLAM/DLOG/PF among female police officers showed a fair percentage of satisfaction and dissatisfaction among this public. Dissatisfaction stems from the fact that ballistic protection is more rigid, making it difficult for police officers to move around and be resourceful in their police activities. A perfect customization of a vest with a bulge adapted to their size and body complexions with specific equipment would generate a very high cost for the Public Administration, according to surveys carried out in meetings held by the Division with national and international suppliers. In this sense, we opted for a vest without a bulge and that values quality in terms of flexibility, lightness and greater safety for police officers.

5.39. With regard to the male police officers, it was observed in practice that the vests were equally uncomfortable, not very flexible, heavy and generated inadequate thermal sensations; they are therefore "leaned on" or forgotten by the officers. This can lead to a "failure" in ballistic safety due to the lack of comfort, which can result in federal police officers preferring not to use ballistic protection, or even using it inappropriately.

5.40. Thus, the current challenge regarding the acquisition of vests must take into account the climatic aspects of a continental country, violence in society, the comfort of the security operator (weight and flexibility of the vest), the safety/protection offered by the equipment (area of protection x mobility), resistance and durability (cost-effectiveness), warranty, possibilities of use (appropriate environments), among others (citing usability experience from previous vest processes).

5.41. Based on the above information, it is highly recommended -- if not necessary -- that the equipment (consisting of the Plate Carrier set with Ballistic Plates) be subjected to usability tests with evaluation criteria specifically dimensioned considering the realities of the work of regular Federal Police officers at national level, as far as possible. Thus, the Terms of Reference should detail the tests to be carried out in order to assess the usability of the Plate Carrier with

Ballistic Plates set, together with the equipment's usability evaluator form.

6. **REQUESTING AREA**

6.1. Planning and Control Division - DPC/CGPLAM/DLOG/PF.

7. **DESCRIPTION OF CONTRACTING REQUIREMENTS**

7.1. The contractor must:

7.1.1. Comply with NT- SENASP No. 003/2021 - Ballistic Protection Vests (Ordinance No. 281, of May 21, 2021), which "establishes the minimum requirements for ballistic protection vests for public security professionals, as well as the methods for carrying out the tests, in order to guarantee the safety, quality, performance and reliability of the garments, specifying the threat levels and the respective calibers at which a ballistic protection vest must be able to prevent punctures or deformations for professional activity":

7.1.1.1. This requirement will be met by presenting the Certificate of Conformity of the ballistic plates to NT- SENASP No. 003/2021- Ballistic Protection Vests (Ordinance No. 281 of May 21, 2021) for the level of protection of interest in the process, in full validity.

7.1.2. Present a certificate of conformity in accordance with Ordinance No. 189-EME of 18/08/2020;

7.1.3. Pass the tests set out in the Terms of Reference contained in this process;

7.1.4. Proof of ability to supply similar goods of equivalent or greater technological and operational complexity with the object of this contract, or with the relevant item, through the presentation of certificates or attestations, by legal entities under public or private law, or regularly issued by the competent professional council, when applicable;

7.1.5. Provision of a certificate of technical capacity for at least 25% of the total quantity of the compatible object, as defined in the Terms of Reference;

7.1.6. Compliance with the rules pertaining to the bidding method appropriate to the specific case;

7.1.7. Strict compliance with the formalities necessary for procedural instruction, both in the internal and external phases of the bidding process;

7.1.8. Capacity to deliver the quantity of ballistic vests and the estimated value of the acquisition so that the solution is as efficient as possible with the least possible expenditure of resources;

7.1.9. Sizing of the vests and availability of the size grid, if applicable, for proper use according to the body dimensions relevant to the case;

7.1.10. Deliver the goods, free and clear to the location specified in the Order for the Supply of Goods, in Brasilia-DF, taking into account the International Trade Terms - INCOTERMS 2010 - DPU - Delivered At Place Unloaded - with the contractor bearing all direct and indirect costs of import, international transport insurance, packaging, various insurances, transport, taxes, labor and social security charges arising from the supply, international transport insurance, international freight, motor freight, postal correspondence, assembly, warranty, technical assistance, technical responsibility, technical delivery, domestic transport and freight, taxes, fiscal contributions, parafiscal contributions, fees (Siscomex, airline fees, RADAR fees, import license fees, customs clearance fees, customs warehousing fees, capatazia fees, airport expenses and any others that may be necessary), cargo handling costs, third party services or labor, due in the country of origin or in Brazil; e

7.1.11. Obtain the import license, pay for insurance, transportation, equipment deposit, clearance costs and all costs (expenses) of customs formalities payable on import. The Federal Police will be responsible for providing the contractor with all the documentation it needs to carry out customs formalities, with the aim of obtaining tax exemption, in accordance with legal provisions (Federal Law No. 8.032/90).

8. **ENVIRONMENTAL SUSTAINABILITY**

8.1. The Contractor must comply, where applicable, with the following environmental sustainability criteria, under the terms of Normative Instruction No. 1 of January 19, 2010:

8.1.1. That the goods are made up, in whole or in part, of recycled, non-toxic, biodegradable material, in accordance with ABNT NBR - 15448-1 and 15448-2;

8.1.2. That the environmental requirements for obtaining certification from the National Institute of Metrology, Standardization and Industrial Quality (INMETRO) as sustainable products or products with a lower environmental impact compared to their similar products are observed;

8.1.3. That the goods should preferably be packed in suitable individual packaging, with the smallest possible volume, using recyclable materials, in order to ensure maximum protection during transportation and storage; and

8.1.4. That the goods do not contain hazardous substances in concentrations above those recommended in the RoHS (Restriction of Certain Hazardous Substances) directive, such as mercury (Hg), lead (Pb), hexavalent chromium (Cr(VI)), cadmium (Cd), polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs).

8.2. Sustainability criteria are those provided for in the specifications of the object and/or obligations of the contractor and/or in the public notice as a requirement under special law, and in compliance with the National Guide to Sustainable Procurement, prepared by the National Sustainability Chamber - CNS/DECOR/CGU/AGU, 4th edition, August/2021).

8.2.1. The following forms of destination or final disposal of solid waste or tailings are prohibited:

8.2.2. Disposal on beaches, in the sea or in any water bodies;

8.2.3. Open dumping, with the exception of mining waste;

8.2.4. Burning in the open or in containers, installations and equipment not licensed for this purpose;

8.2.5. Other forms prohibited by public authorities.

8.2.6. The technical area certifies that it has followed the guidelines of the National Sustainable Bidding Guide, 7th edition, October/2024.

9. MARKET SURVEY

9.1. In order to acquire ballistic protection equipment, it is necessary to define the levels of protection available on the market, in accordance with current legislation, assessing the "protection x mobility" ratio that is most suitable for police work. No ballistic plate on the market will be able to protect the police officer against all existing calibers, however, it is possible to verify, based on statistical data from the tactical groups and available information, which level of protection is the most suitable to be acquired for the activities of the Federal Police.

9.2. Among other prospecting actions, visits were made to national and international fairs and exhibitions of defense and public security equipment, which provided valuable information for the Federal Police in order to consolidate knowledge about the most diverse solutions and technologies of interest to the Agency. For example, a technical visit by a DPC team in June/2018 (Eurosatory) and March/2019 (IWA Outdoor Classics) revealed the existence of lighter, more flexible ballistic vests with warranty periods that can extend up to 10 years, whereas the periods usually offered by Brazilian companies are only 5 years. Also, according to a visit by a DPC team in April/2019 and April 2023 (LAAD), it was found that the domestic market has been working on modernizing vests, both in terms of the standard for ballistic tests (migration from the US National Institute of Justice (NIJ) standard 0101.04 to 0101.06) and in terms of product quality (outer cover and ballistic panels).

9.3. On the other hand, it became apparent during the visit to the event that the international market has a wide variety of companies capable of providing ballistic protection against threats from calibers 7.62 x 51 mm - NATO Full Jacket (NATO FMJ) and 5.56 x 45 mm - SS 109 Full Jacket (SS 109 FMJ), through various types of international certifications, such as Point Blank Enterprises, Protecop, Mehler Vario System and Safariland, for example, as detailed in item 2 of this document.

10. DESCRIPTION OF THE SOLUTION AS A WHOLE

10.1. The technical description of the Stand Alone ballistic plates (front and back set) and modular Plate Carrier ballistic plate vests, as well as the criteria for the Federal Police Vest Usability Tests, are set out in Annex I of this ETP.

11. ESTIMATED QUANTITIES TO BE CONTRACTED

11.1. The acquisition of the items in question will allow police officers assigned to units that need to use the equipment to act more accurately and safely, especially during the extremely high-risk operations in which they participate, keeping federal police officers properly equipped and able to meet the demands of supporting the central and decentralized units of the Federal Police. Added to this is the need to standardize the equipment in order to identify and preserve the physical integrity of federal police officers in the performance of their duties, as well as the need to cover the active federal police force with this equipment, along with guaranteeing the regularity of supply.

11.2. The sizing of the quantity is based on the Strategic Planning of the Brazilian Army, according to Ordinance -C EX No. 2,138, of December 7, 2023, which approves the table of appropriations for weapons, bulletproof vests and ammunition for the Federal Police and makes other provisions, in DG/PF Ordinance No. 18,589, OF 20/09/2023 (31541268), which approves the Table of Appropriations for Controlled Products and the Strategic Plan for Purchases of Controlled Products of the Federal Police, according to process 08200.017871/2023-12. It should also be noted that the aforementioned Ordinance is classified as confidential for the reasons set out in that process. With the aforementioned allocation, a total of 6,364 Stand Alone ballistic plates (front and back set) are required. In other words, the request for the quantity in question is due to the need to ensure that ballistic vests are available basically for use in: the body's core activities; police training courses; and sample tests to control and build a learning curve.

11.3. As a result, 6,364 modular vests with black Plate Carrier ballistic plates are needed for the proper use of the ballistic plates, since this is equipment for ordinary federal police officers. There is also a need to provide vests with the Multicam® camouflage pattern for regular Federal Police officers who are frequently subjected to operations and due diligence in rural regions, such as operations to combat illegal mining and deforestation, operations to eradicate marijuana plantations, environmental investigations, operations on indigenous lands, operations to combat drug trafficking, among other types of actions that fall within the remit of this Federal Police. These are cases frequently experienced by DMA, DAMAZ, CGPRE, as well as DELEPATs, DELINSTs, DREs and SETECs.

11.4. According to the data contained in the Federal Police's Business Intelligence (BI) system, there are 1,854 Federal Police officers working in these areas, as shown in figure 04:



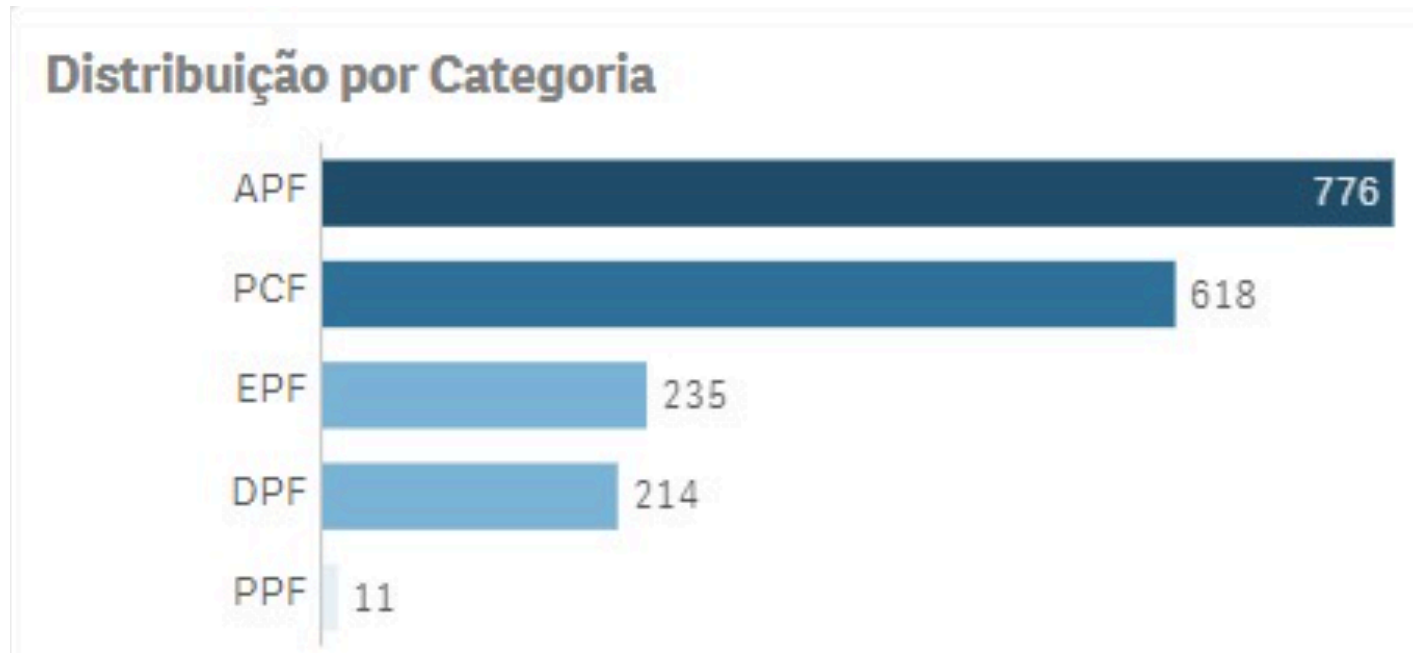


Figure 04 - Number of civil servants assigned to DMA, DAMAZ, CGPRE, as well as DELEPATs, DELINSTs, DREs, SETECs.

11.5. According to data collected from the Institutional BI, the main police actions of this nature are concentrated in the following states, as shown in figure 05: AM, RR, RO, AP, PA, MT, GO, MA, AL, SC, SP, RS, MS and BA. These are regions where much of the country's vegetation cover is concentrated, especially the Legal Amazon region, as can be seen in figure 06.

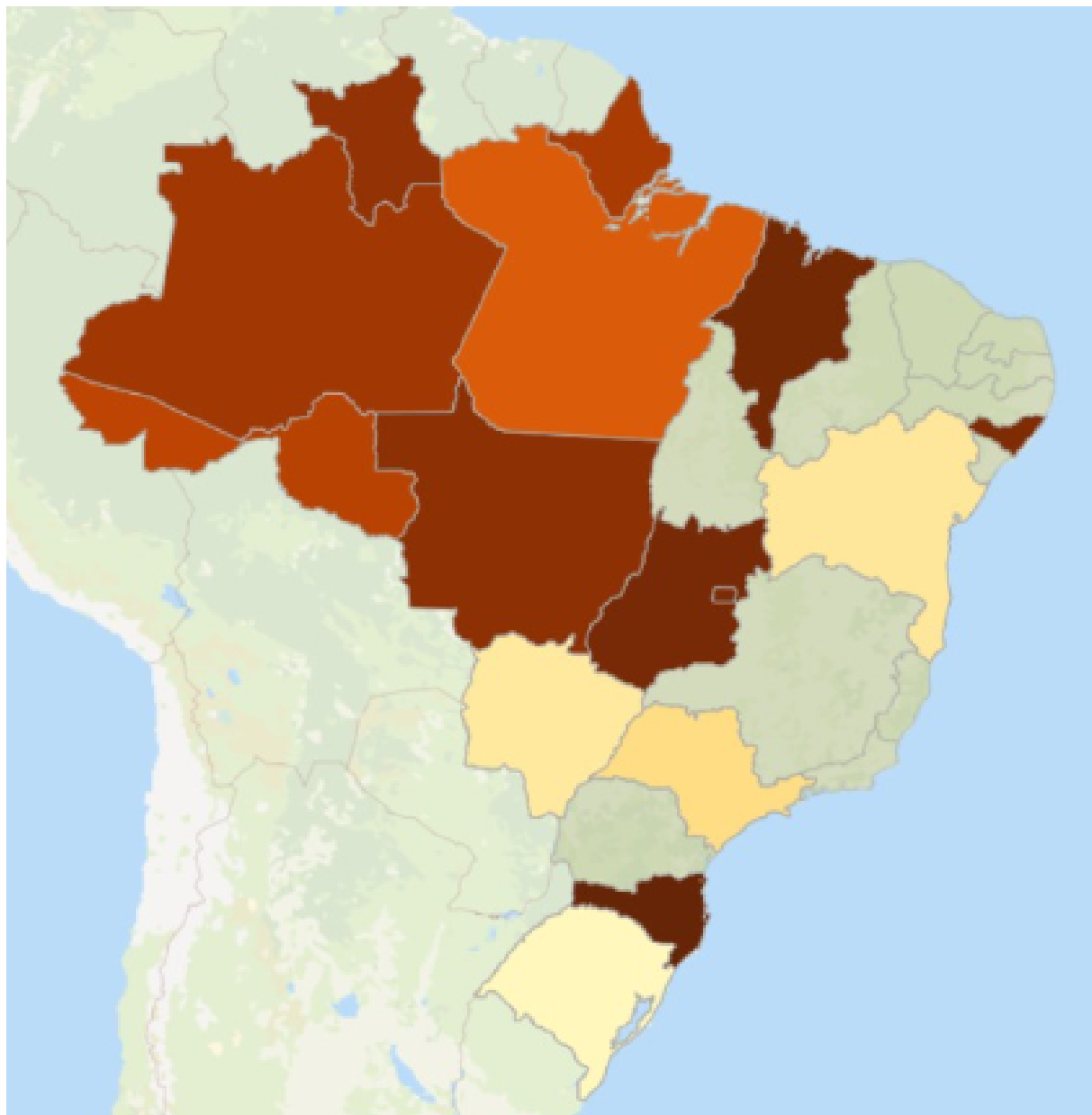


Figure 05 - Density of operations in the areas covered by DMA, DAMAZ, CGPRE, as well as DELEPATs, DELINSTs, DREs and SETECs.

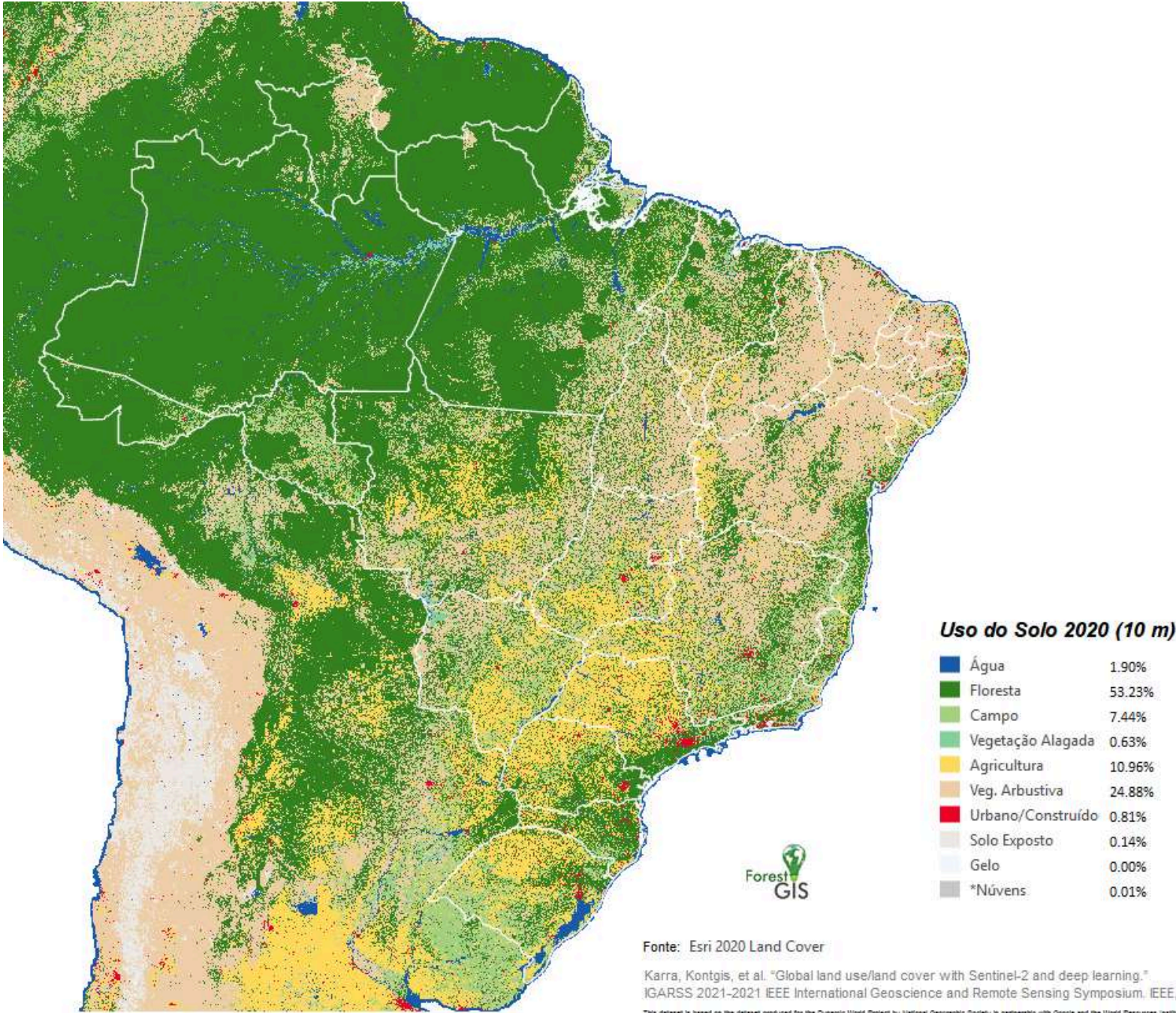


Figure 06 - Brazil's land use in 2020 according to the ESRI 2020 Land Cover.

Need to use Plate Carriers with standardized MultiCam® camouflage

11.6. MultiCam® patterns use a color mixing technique that exploits human visual perception, integrating the user into the environment, which is effective in a wide range of conditions and maintains efficient camouflage, even at close range. The brand has 05 (five) main patented Multicam® patterns, which have been developed to offer high effectiveness in various operating environments, minimizing the logistical burden. Each pattern has a specific role, but all are designed to work together to meet a wide range of operational requirements. They are

11.6.1. MultiCam®: Base standard, proven in combat, suitable for varied environments.

11.6.2. MultiCam Arid™: Ideal for sand and rock desert terrain.

11.6.3. MultiCam Tropic™: Designed for dense jungle environments.

11.6.4. MultiCam Alpine™: Suitable for areas with snow cover.

11.6.5. MultiCam Black™: Aimed at law enforcement operations, with a focus on a more imposing ostentatious presence.



Figure 07 - MultiCam® family standards

11.7. The development of MultiCam® involved in-depth studies of natural camouflage, environmental observations and field tests, resulting in patterns optimized for different operating conditions to effectively limit the visual and near-infrared signature of a person operating in a wide variety of physical environments and seasons. The technology has been extensively tested in combat and, after becoming the standard officially adopted by the US Army for all military operations in Afghanistan in 2010, MultiCam® is regarded as the proven camouflage solution for multiple environments.



Figure 08 - Application examples of the original .MultiCam® camouflages

11.8. Multicam® tactical materials offer a significant advantage in terms of camouflage in jungle regions when compared to black uniforms. The Multicam® pattern is designed to blend in harmoniously with a variety of natural environments, including dense forests and areas with sparse vegetation, providing effective concealment from wearers. In contrast, black uniforms tend to stand out in the natural environment, as the color black is rarely found in nature and creates easily identifiable silhouettes, not only in daylight but also at night, contrary to the layman's imagination. The ability of Multicam® uniforms to mimic the coloration and textures of the surrounding environment helps to reduce visual detection, improving the safety and efficiency of operations. In addition, the Multicam® pattern is effective in both bright light and shadows, adapting well to changes in brightness and ensuring that police officers can camouflage themselves more effectively in a variety of jungle scenarios.



Figure 09 - Example of the advantages of the Multicam® pattern.

11.9. Attention should also be paid to the fact that there are several multicam variations on the market between suppliers in terms of the pattern and colors of the pieces, which is not desirable for the operational activities of the military or police service, as it generates disparities in multicam shades between the equipment of users who work together. In addition, the vast majority of brands do not have the same technological background as the original Multicam® camouflage, which is why it is highly recommended that the original Multicam® camouflage and shade standardization guideline be adopted.

11.10. It should be noted that the Multicam® standard has been applied since 2015 in the Federal Police's specialized tactical units using the original Multicam® shade, since it features the color standard, durability, comfort and safety essential for operational use, in addition to being marketed by several

tactical equipment manufacturers, such as TRUSPEC, FIRST TACTICAL, CRYE PRECISION, 5.11, HELIKON-TEX, CONDOR OUTDOOR, SAFARILAND and etc., which does not restrict the competition from opting for the original camouflage pattern. In fact, recently the Federal Police, through COMPORTOS, successfully acquired Multicam® materials for the Maritime Police Units, according to SEI process 08492.004552/2022-28 (restricted protocol), in September 2023.

11.11. The use of uniforms with Multicam camouflage® is of paramount importance in regions with large vegetation cover, especially where there is a high propensity for federal police actions that require rural incursion. This camouflage pattern is designed to blend in perfectly with dense vegetation, providing effective concealment from agents. This is crucial for ensuring security and tactical surprise during operations, reducing the likelihood of detection by hostile elements. In addition to improving stealth, Multicam uniforms are made from durable and breathable materials, suitable for the rigors of activities in forest environments, ensuring that police officers can operate comfortably and efficiently. The adoption of Multicam® uniforms is therefore important for the success and safety of operations in rural areas with abundant vegetation.

11.12. In view of the above, it is necessary to purchase 6,364 Stand Alone ballistic plates (front and back set), 6,364 modular Plate Carrier ballistic plate vests in Black and 1,854 in Multicam® color, according to item 11.6.1. for the managing body.

11.13. And according to the extract from the publication of the IRP 37790006 39587154 referring to the participating body UASG: 927888 - BATALHÃO DE OPERAÇÕES POLICIAIS ESPECIAIS, acquisition of 100 ballistic plates of the Stand Alone type (frontal and dorsal set), 80 modular ballistic plate holder vests of the Plate Carrier type in Black color and 80 in Multicam® color according to item 11.6.1.

11.14. With regard to the bidding process, we clarify the decision not to establish minimum quantities since budget variations and the agency's internal guidelines directly influence the quantities to be committed as well as the consumption and distribution of each item throughout the decentralized units

11.15. This decision was adopted on the following grounds:

I- Flexibility to adjust purchases to the real needs of the Administration.

II- Promoting competitiveness by encouraging the participation of companies of different sizes.

III- Economy, avoiding unnecessary expenses and aligning the process with the real demands of the public body.

IV- Legal compliance, complying with Law 14.133/2021 on the planning and advantageousness of contracts.

11.16. This measure ensures that public resources are used efficiently, guaranteeing transparency and the suitability of contracts to the interests of the Administration while preserving budgetary rationality.

12. ESTIMATED VALUE OF THE CONTRACT

12.1. The total estimated cost of hiring Stand Alone Ballistic Plates (front and back set) is R\$ 52,519,935.36 (fifty-two million, five hundred and nineteen thousand, nine hundred and thirty-five reais and thirty-six cents).

12.2. The total estimated cost of hiring Plate Carrier modular ballistic vests (Black) is R\$15,558,264.72 (fifteen million, five hundred and fifty-eight thousand, two hundred and sixty-four reais and seventy-two cents).

12.3. The total estimated cost of hiring Plate Carrier modular ballistic vests (Multicam®) is R\$ 5,564,756.22 (five million, five hundred and sixty-four thousand, seven hundred and fifty-six reais and twenty-two cents).

12.4. Totaling an estimated **R\$ 73,642,956.30 (seventy-three million, six hundred and forty-two thousand, nine hundred and fifty-six reais and thirty cents)**, as shown in the table below:

MANAGING BODY AND PARTICIPANT						
ITEM	SPECIFICATION	CATMAT	UNIT OF UNIT	TOTAL QUANTITY	UNIT VALUE	TOTAL VALUE
1	Stand-alone ballistic plates (front and back set)	479094	Unit	6.464	R\$ 8.124,99	R\$ 52.519.935,36
G1	2 <i>Plate Carrier</i> modular ballistic vests (<i>Black</i>)	605162	Unit	6.444	R\$ 2.414,38	R\$ 15.558.264,72
	3 Modular ballistic plate carrier vests of the type <i>Plate Carrier (Multicam®)</i>	605162	Unit	1.934	R\$ 2.877,33	R\$ 5.564.756,22
TOTAL						R\$ 73.642.956,30

MANAGING BODY						
ITEM	SPECIFICATION	CATMAT	UNIT OF UNIT	TOTAL QUANTITY	UNIT VALUE	TOTAL VALUE
1	Stand-alone ballistic plates (front and back set)	479094	Unit	6.364	R\$ 8.124,99	R\$ 51.707.436,36
G1	2 <i>Plate Carrier</i> modular ballistic vests (<i>Black</i>)	605162	Unit	6.364	R\$ 2.414,38	R\$ 15.365.114,32
	3 Modular ballistic plate carrier vests type <i>Plate Carrier (Multicam®)</i>	605162	Unit	1.854	R\$ 2.877,33	R\$ 5.334.569,82
TOTAL						R\$ 72.407.120,50

PARTICIPATING AGENCY - UASG: 927888 - SPECIAL POLICE OPERATIONS BATTALION							
ITEM		SPECIFICATION	CATMAT	UNIT OF UNIT	TOTAL QUANTITY	UNIT VALUE	TOTAL VALUE
1		Stand-alone ballistic plates (front and back set)	479094	Unit	100	R\$ 8.124,99	R\$ 812.499,00
G1	2	Plate Carrier modular ballistic vests (Black)	605162	Unit	80	R\$ 2.414,38	R\$ 193.150,40
	3	Modular ballistic plate carrier vests type Plate Carrier (Multicam®)	605162	Unit	80	R\$ 2.877,33	R\$ 230.186,40
TOTAL							R\$ 1.235.835,80

13. JUSTIFICATION FOR SPLITTING THE SOLUTION OR NOT

13.1. Installments allow the public body to adjust its expenses over time, according to budget availability, without compromising the performance of the contract. Tranching facilitates the execution of the contract in phases, allowing the Public Administration to allocate resources gradually, according to the availability of budget credit in different fiscal years.

13.2. Public bodies often face limitations in their annual budgets. By dividing the execution of the tendered object, it is possible to program the execution in stages, adjusting to the flow of financial resources and ensuring that payments are made within the financial capacity of the body.

13.3. Splitting the execution of the object can avoid large disbursements all at once, distributing the expenses over time. This can be crucial for the administration, especially in times of fiscal restrictions or budget constraints.

13.4. By working in installments, the public body can prioritize certain parts of the project according to urgency or need, postponing less-priority parts to future times, when more resources are available.

13.5. Installments make it easier to make contracts compatible with the Multi-Year Plan (PPA) and the Budget Guidelines Law (LDO), allowing larger contracts to be executed in accordance with the budget forecast for subsequent years.

13.6. In the event of budget constraints, the installment plan allows only part of the project or contract to be executed, adjusting the financial disbursement without the need to cancel or completely paralyze the project.

13.7. Tranching is a strategy that can not only guarantee more efficient execution of the contract, but also more responsible budget management, in line with the financial reality of the public body.

13.8. The rule to be observed by the Administration in tenders is that the object must be split up, as provided for in Art. 40 of Law No. 14.133, of April 1, 2021.

13.9. In this case, dividing the object into items is technically feasible and does not represent a loss of economy of scale (TCU Precedent 247), as well as being aimed at increasing competition and making the contract more economical.

14. **RELATED AND/OR INTERDEPENDENT CONTRACTS**

14.1. Related and/or interdependent contracts refer to the need to acquire different items or services that are related to each other or that depend on each other to achieve a common goal. Here are some considerations about these contracts:

- a) Correlated Contracts: These are those involving products or services that, although they can be used independently, have a link that justifies their joint acquisition in order to optimize processes and results.
- b) Interdependent Contracts: Refers to items or services whose execution depends directly on the realization of others. For example, the acquisition of hardware and software that needs to be installed and configured simultaneously.

14.2. In practice, the identification of related and interdependent contracts should be based on a careful analysis of the project's needs, considering both technical and budgetary aspects. Law 14.133/2021 allows this approach to promote efficiency and economy in public procurement.

14.3. In other words, it is not necessary to carry out related and/or interdependent contracts in order to achieve the objective of this contract. It was also certified that IRPs had been consulted and that it was not appropriate at the time to participate in any ongoing IRP.

14.4. This acquisition is autonomous and does not require related or interdependent contracts.

15. **ALIGNMENT BETWEEN PROCUREMENT AND PLANNING**

15.1. The object of the procurement is provided for in the 2025 Annual Procurement Plan, as detailed below:

I - PCA ID in the PNCP: 00394494000136-0-000025/2025

II- Date of publication in the PNCP: 16/05/2024

III- Item ID in PCA: 127

IV- Class/Group: 9999 - MISCELLANEOUS ITEMS

V- Future Procurement Identifier: 200334-26/2025

15.2. The intended acquisition is in line with the guidelines set out in the Federal Police's 2024/2027 Strategic Plan, helping to achieve the following critical success factors and relating to the following guidelines:

15.2.1. Motivated personnel: Having motivated personnel to perform their duties and fulfill the institutional mission;

15.2.2. Effective logistical support: To have a logistics system that allows all its units to remain fully operational, especially in adverse situations; and

15.2.3. Maintained credibility: High levels of acceptance and credibility in Brazilian society and the international community.

15.3. The Federal Police's strategic objectives related to this plan are:

15.3.1. Strengthen the fight against crime.

15.3.2. To promote actions for the benefit of citizens.

15.3.3. To ensure effective use of resources.

15.4. The strategies are

15.4.1. Boost crime prevention and repression actions with the help of new technological means.

15.4.2. Decapitalize criminal organizations and arrest their leaders.

15.4.3. Strengthen police action in border areas.

15.4.4. Protecting human rights.

16. **BENEFITS TO BE GAINED FROM THE CONTRACT**

16.1. This contract is expected to

16.1.1. Equip federal police officers with Stand Alone type ballistic plates (front and back set) and modular Plate Carrier type ballistic plate vests, for use in missions, due diligence, police operations and/or unusual situations that may happen to them, in order to minimize the risk of injury or death in the event of an armed confrontation;

16.1.2. Fulfillment of the powers assigned to the Federal Police;

16.1.3. Modernization and management of the institution's assets and material resources, improving their use and utilization;

16.1.4. Renewal and maintenance of federal police equipment that has expired and is in proper working order and reliable;

16.1.5. Regular and continuous training of Federal Police personnel;

16.1.6. Maintaining operational readiness to respond to emergency situations and fulfilling the responsibilities of maintaining public order and security;

16.1.7. Carrying out activities safely and reliably during police missions, safeguarding and guaranteeing the physical integrity of all those involved in the action;

16.1.8. Maintain a standard of quality and conditions to meet society's demands in terms of public safety and dealing with crime.

17. MEASURES TO BE ADOPTED

17.1. Full compliance with Ordinance No. 18 of 19/12/2006 / MD approving the Regulatory Standards for the Technical Evaluation, Manufacture, Acquisition, Import and Destruction of Bulletproof Vests.

17.2. Full compliance with NT- SENASP No. 003/2021 - Ballistic Protection Vests (Ordinance No. 281, of May 21, 2021) which "establishes the minimum requirements for ballistic protection vests for public security professionals, as well as the methods for carrying out the tests, in order to guarantee the safety, quality, performance and reliability of the garments, specifying the threat levels and the respective calibers at which a ballistic protection vest must be able to prevent punctures or deformations for professional activity".

17.3. Full compliance with Ordinance No. 189-EME of August 18, 2020, or any legislation that may replace it.

17.4. This acquisition requires the Authority to adjust its own allocation, in accordance with current legislation on the subject;

17.5. Arrange for expired ballistic plates to be collected and sent for proper destruction.

17.6. It is also necessary to continue studies to improve the Federal Police's allocation of controlled products, reviewing the institution's strategic planning for controlled products.

18. POSSIBLE ENVIRONMENTAL IMPACTS

18.1. No significant environmental impacts are expected as a result of the intended contracting.

19. CLASSIFICATION REGARDING ACCESS TO INFORMATION

19.1. Under the terms of Law No. 12,527 of November 18, 2011, this Planning Team believes that:

19.1.1. The information contained in this Preliminary Study SHALL BE MADE AVAILABLE to any interested party participating in the tender.

20. FEASIBILITY STATEMENT

20.1. This planning was prepared in harmony with Normative Instruction No. 58/2022, and in compliance with the ETP model available on the compras.gov.br website, as well as in compliance with the technical requirements necessary to fulfill the needs and the object of the contract, as well as as well as duly meeting the business demands formulated.

20.2. In addition, the intended benefits are adequate; the estimated costs are compatible and characterize economy; the risks involved are manageable and the requesting area will prioritize the supply of all the elements listed here necessary to achieve the intended benefits.

20.3. For all the above reasons, contracting the event is not only feasible, but essential for good results and performance by the Federal Police.

20.3.1. This justifies the need to acquire this material by means of a BIDDING procedure, in the form of an ELECTRONIC BIDDING, through the Price Registration System - SRP, with the adoption of the LOWEST PRICE judgment criterion.

21. **RESPONSÁVEIS**

21.1. The Procurement Planning Team, established in accordance with SEI document no. 36349533, approves this Preliminary Technical Study, in accordance with § 2 of Art. 11 of IN SGD/ME no. 01, of 2019, and submits it for consideration by higher authorities.

(Electronic Signature)

ANTONIO GUSTAVO FARIA LIMA

Federal Police Agent

Full Requisitioning Member SEIP/DPC/CGPLAM/DLOG/PF

(Electronic Signature)

CAROLINE LUCHTENBERG RIBEIRO

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